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Convention Number

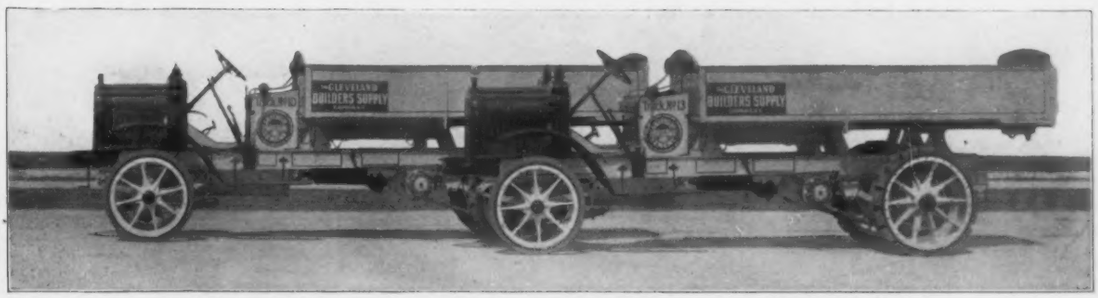
Rock Products

DEVOTED TO

Concrete and Manufactured Building Materials

Volume XIII. CHICAGO, ILL., FEBRUARY 22, 1914. Number 8.

CONVENTIONS IN THIS NUMBER



White 5-ton Trucks, owned by The Cleveland Builders' Supply Co., Cleveland, Ohio.

White Trucks Solve Your Hauling Problems

Scores of concerns in your line of business have matched White Trucks against their hauling problems, with these results:

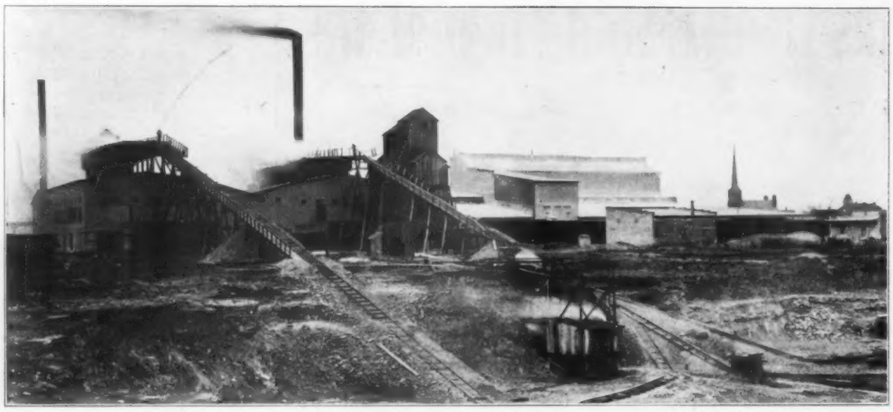
They have increased their business.
They have reached new territory.
They have simplified their delivery system.
Their delivery service has improved.
Their delivery cost has decreased.
Their hauling problems are solved.

All of the advantages of the motor truck delivery are found in the greatest degree in White Trucks. This is proven by the fact that more White Trucks are in service than any other make; if White Trucks were not more efficient, more reliable, and more economical than others—then some other truck would be the best selling truck. The leadership of White Trucks becomes more evident every day. The best is not too good for your business.

If you want some sound information on motor truck construction, and a bird's-eye view of the fields that White Trucks are serving, send for our catalog ***now.***

THE WHITE COMPANY
Cleveland

Both in Quantity and Value of Production the largest Manufacturers of Commercial Motor Vehicles in America



THE OLD PLANT OF THE NATIONAL MORTAR & SUPPLY COMPANY.

NEW PLANT OF NATIONAL MORTAR & SUPPLY CO.

The two photo-engravings illustrate the improvements made during fourteen years in the manufacture of Hydrate Lime for the trade.

Progress of the Banner Hydrate Lime

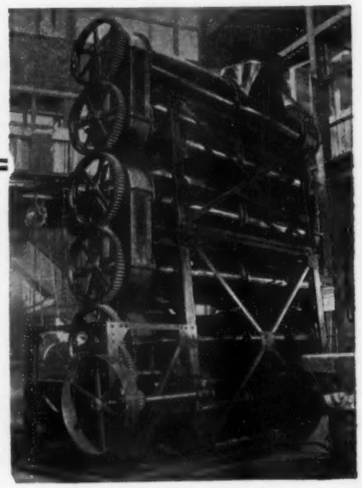
IN APRIL 1908 it started with a 10 kiln plant, in 1910 built 6 kilns more, and in 1911 built 4 more kilns, making 20 kilns, which is called the old plant. As the **Banner** waved over so much territory the directors of the National Mortar & Supply Co., came to the conclusion that the **Banner** should cover more territory, and in the Fall of 1912 bought more acreage and laid plans for building 15 more kilns, with the latest improved plant construction of steel and concrete. This is now completed, ready for business, every known labor saving device having been installed. The old and new plant will be run entirely with electricity. Steam is supplied to the Bradley Gas Producer from the new plant, with superheated steam. The stone crushing plant will also be improved to take care of all spawls from the quarry. Additional railroad sidings made necessary by increased capacity will be installed at once.

All this happened in the short time of six years and the company is now in a position to supply the trade promptly, as 35 kilns all of modern construction will be at their disposal. It is also a well known fact that a lime plant built with the latest and best application of producer gas appliances, which in this case is the Bradley way of introducing the gas to the burning of lime, makes it easier to control the heat and air, and from experience pays a good interest on the investment. The company expects to be in a position to take care of all orders that come along promptly and without any delay.

For information and other details such as prices and prompt shipments, please write the

A. H. Lauman, President **NATIONAL MORTAR & SUPPLY CO.,** **Pittsburgh, Pa.**

HYDRATED LIME



KRITZER CONTINUOUS PROCESS

The Dealers' Opportunity for Increasing His Profit

Many retailers of masons' supplies are either overlooking or failing to appreciate how their sales might be increased by carrying HYDRATE in stock. It will not only increase their revenue directly but put them in touch with a wider range of customers who, in the course of time, might become purchasers of other supplies. This is particularly applicable in suburban cities or rural districts.

If a dealer were to circularize his community, setting forth the many advantages of HYDRATE in the suburban home where they have from a half an acre to ten acres, or for the farmer with a big farm, he would gradually build up a business in this commodity which would be surprising.

The average resident in a suburban district does not know that lime, scientifically hydrated, can be procured in small quantities and kept indefinitely in a comparatively dry place so that it can be used when the occasion presents itself. If this fact were known, practically every one of these suburbanites and farmers would keep a bag or two on hand constantly.

SOME OF THE USES

A small box of HYDRATE kept in the cellar serves to absorb the damp and purifies the atmosphere, making it much more wholesome especially where foods are kept.

HYDRATE can be used for whitewashing. Quite a number of formulas can be secured and if it is properly mixed, it will not only make the very best whitewash, but it will act as a cold water paint.

One of the advantages of using HYDRATE is that it does not have to be slaked. The process of slaking is accompanied by no little danger, especially to the novice who does not understand the explosive nature of lime when it slakes.

HYDRATE is not air slaked lime and for that reason can be used any place that ordinary slaked lime can be employed. Air-slaked lime cannot be used for plastering, but HYDRATE can. There are always times when a little patching is necessary. Laying up of stone or brick can be easily accomplished, saving both time and money.

HYDRATE, when mixed with concrete fills voids and pores and not only makes the concrete more plastic and easier to use, but by increasing its density, makes it watertight. It also has a tendency to lighten the color and make a more attractive job. Add 10% to 15% to the mix.

HYDRATE is also a well known insecticide and germicide and when used to dust around the chicken houses will not only have a tendency to purify the atmosphere but keep down vermin, especially if mixed with kerosene.

HYDRATE can be used to spray around the lawn or garden or around roots of trees, shrubbery, etc. It can be used with a mixture of kerosene or sulphur as a spray.

There are many more uses for lime around the farm that the average farmer is well acquainted with.

ONE DEALER'S EXPERIENCE

We have in mind a retailer of masons' supplies who has, by circularizing the residential section on the outskirts, and the farmers immediately adjacent, to his township, created a demand for HYDRATE in small quantities and he says that the advertising which he has secured in this manner has brought him trade for cement, sewer pipe, coal, lumber and other materials. He puts it up in one, five and ten pound packages and sells it at a nice profit. He says that many of the farmers are now keeping a bag or so constantly on hand and they tell him that they would not be without it as it is one of the handiest things to have about the farm.

One dealer mentioned the case of a farmer living about eight miles from his yard who stated that frequently when he had a little whitewashing to do it would mean sending his man with a team to the nearest station for two or three bushels of quicklime. Frequently the dealer would be sold out of the product for a few days and this would necessitate the team making another trip, thus increasing the cost.

All that is necessary to work up a nice business in this commodity is a little advertising on the part of the retailer in order to acquaint the farmers with the advantages of hydrated lime. While it is not a new product it is comparatively so to the average surburban resident and small farmer and it is to these that the retailer must make his appeal. Many a farmer has been started to using HYDRATE in this way and has become a large user in time.

Retailers of masons' supplies will do well to give this subject some thought and if they are not thoroughly familiar with its possibilities, we would be pleased to give them any assistance or information which we have at hand to aid them in building up their trade in HYDRATE.

—*Mason & Builder.*

Our business is to install up-to-date hydrating plants and guarantee results. Our plants are all designed to meet local conditions. The CONTINUOUS PROCESS is the only process that has proved successful in hydrating both high calcium and dolomitic lines. While we do not recommend the batch system, however, we install them for making hydrate for the fertilizer trade, but not for general use. We would like to take this matter up personally with you and feel confident that we could interest you in our process and machinery.

The Kritzer Company

Chicago, Ill.

ROCK PRODUCTS

ESTABLISHED IN LOUISVILLE, KY., 1902.
DEVOTED TO CONCRETE AND MANUFACTURED BUILDING MATERIALS.

Volume XIII. **CHICAGO, FEBRUARY 22, 1914.** **Number 8**

THE FRANCIS PUBLISHING COMPANY
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Telephone Harrison 8086, 8087 and 8088.

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Communications on subjects of interest to any branch of the industry are solicited and will be paid for if available.
Every reader is invited to make the office of Rock Products his headquarters while in Chicago.
Editorial and advertising copy should reach this office at least five days preceding publication date.

TERMS OF ANNUAL SUBSCRIPTION.
In the United States and Possessions and Mexico.....$1.00
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Advertising rates furnished on application.

Published on the 22nd of each month.
Entered as second-class matter July 2, 1907, at the Postoffice at Chicago, Illinois, under Act of March 3, 1879.

The delay in this paper has been occasioned by the sickness of practically the entire ROCK PRODUCTS force, due to the strenuosity of a season's campaign of meetings, and the untimely death of our new manager, W. A. McCall. Our family of readers we feel sure will forgive our tardiness, especially those who received the big Daily published nine times for nine days.

MATERIAL PUBLICATIONS CONSOLIDATE

"Building Materials" to Succeed and Incorporate "Rock Products" and "Dealers Building Material Record"—To Be Issued Semi-Monthly.

In 1902, when the first building material publication was started, its owners fully appreciated the fact that the craft could well support a periodical which might be published oftener than once a month. But others had not given the idea much thought and, consequently, were not ready to give their support and co-operation.

During the twelve years since then the men engaged in the building material industries have learned the value of a paper published exclusively in their behalf. Quite frequently we have been asked, "Why don't you come out oftener with your periodical? A month is too long to wait between issues."

Heretofore, there has been two building material papers in the field—and both have received these requests for more frequent issues. These publications have been known to the trade as ROCK PRODUCTS (founded in 1902) and DEALERS BUILDING MATERIAL RECORD (founded in 1907). Both have been interested in building materials—in their raw state as well as in the finished product.

The similarity of the publications and the attempt of each to accomplish the same purpose brought the owners together February 1. As a result ROCK PRODUCTS and DEALERS BUILDING MATERIAL RECORD have consolidated. One of the principal objects of the union is to issue a semi-monthly publication.

We now realize that the trade is ready to support a periodical published twice a month. It will be eagerly subscribed for; and the advertisers will find it profitable to use its pages.

The new publication will be known as "BUILDING MATERIALS" and will succeed and incorporate ROCK PRODUCTS and DEALERS BUILDING MATERIAL RECORD. Its one object will be to promote the manufacture and distribution of building and road construction materials. It will devote its pages to the manufacture and sale of these materials—in fact, it will follow them from the time they leave their natural source in the earth until they are disposed of through the dealer to the contractor or consumer.

Beginning with the quarry, there will be departments for crushed stone for concrete, macadam and ballast; lime and limestone, cement and cement products, sand and gravel, plaster and gypsum products, clay products and kindred materials. Special emphasis will be given to new and improved types of machinery, more economical methods of operation and the development of new properties, each with its particular requirements, making necessary the application of a distinct treatment in the successful producing and marketing of the material.

No industry has had greater expansion in the last few years than has the quarry. Directly changing conditions in the consumption of the quarry products have been and are being met by the producers, in most quarters, by the installation of special types of machinery, until today the successful operation of a quarry lies directly within the province of its equipment and the experience of those who have control of its workings. Our aim shall be to lend the result of our observations from a national, or rather international, standpoint, and to give wide publicity to the acquired information of many years of constant study of the problems of the quarry by men who have sincerely given their time and attention to the quarry proposition in all its intricacies and who have its welfare genuinely at heart.

This is the age of co-operation. No longer do business antagonism and cut-throat competition, so inimical to good practice, dominate the marts of a progressive industry and no longer are such methods considered indispensable to the successful conduct of a quarry or the marketing of the products of its raw material. The doctrine of reciprocity, a spirit of live-and-let-live and an untiring devotion to the cause of confidence and harmony between producer and retailer shall be our inspiration and our policy. We believe that the established, honorable and legitimate merchandising channel of producer to retailer, retailer to consumer, is infallible, irreproachable, and to this mission we dedicate our energies and the force of our influence. In no better manner has such practice been demonstrated than in the hydrated lime industry of today and our early sanction and subsequent exploitation of its merits. The dealer of the present handles hydrated lime; he sells it and unhesitatingly advocates it. He has learned from issue after issue that hydrated lime is his opportunity, and thus with the suggestion came the act.

In the retailers' section there will be a department devoted to each of the following: The Retailer, Association News, Delivery (team and motor truck), Credits, Collections, Accounting Systems, Sales Talks, Specialty Department, Builders' Hardware, Building Material Law, Building Plans, and the semi-humorous department, entitled "How to Handle the Farmer," which will be overflowing with good philosophy and suggestions.

We have made complete arrangements to give to the trade the very best paper possible to produce. We will work for you night and day and give you the results of our research work. For the benefit of the retailer we will have right from the start a "Retailers' Expert" whose sole duty will be to learn the problems that are confronting them, and, in addition to bringing them to the limelight, will seek to remedy and adjust disputes with railroads, manufacturers and others, not with an antagonistic spirit, but with a desire to give due consideration to everyone. His duty, of course, will be to look after the interests of the retailer. He will visit with them. He will travel to the large cities and to the smallest hamlets. Wherever a dealer may be found, there his interests will lie. He will eat with them, sleep with them, and work with them. He will seek to find a proper channel for the distribution of building materials.

The first issue of "BUILDING MATERIALS" will be distributed on March 7. Thereafter, it will appear twice a month, its publishing dates being the 7th and 22nd days of each month.

Manufacturers and dealers alike will appreciate the service we will be able to render to them through the columns of "BUILDING MATERIALS." They will recognize the work we are doing in their behalf and will be pleased to reciprocate. And that is what we heartily believe in and advocate—RECIPROCITY. We will work for you; and we believe you will work for and with us. We need your support and co-operation. We crave it. We want it. Are you going to give it to us and help us make "BUILDING MATERIALS" a success?

"WILL" McCALL is dead. Early Sunday morning, Feb. 22, his spirit departed this life and left for the home beyond. His sufferings just previous to his death were of short duration, although for some time he had not been in the best of health. For more than a week, as manager of the Francis Publishing Co., he had taken active interest in the Cement Show and the various conventions which were held in Chicago during the period of Feb. 11 to 21. In the estimation of Mr. McCall the most important of these meetings was the Fifteenth Annual Convention of the National Builders' Supply Association. He attended every session of this convention and was one of the many who enjoyed the annual banquet.

The day following he was at the ROCK PRODUCTS' booth at the Coliseum; and he mingled with friends and members of the American Concrete Institute at their banquet in the evening. He left early and reached his home about 10 o'clock.

His good wife, who knew just how to minister to him, saw at glance that he was not well. She doctored him and put him to bed. The next morning, as he was about to arise, he stated that he had enjoyed a good night's rest. His weakened condition did not permit him to stand on his feet and, although eager to be at his place of business, he was forced to spend the day in bed under the care of his physician. On Friday and Saturday he gradually grew worse; but on Saturday evening he seemed to rally. He was in a jovial mood and enjoyed a short chat with one of his business associates as late as 11 o'clock. His condition seemed to be rapidly improving and, while his recovery was a matter of doubt, it was not thought that death was lingering near. But after a few hours of unconsciousness he passed away at 8:10 a. m. Sunday, Feb. 22.

His sudden death came as a shock to his many friends who are scattered all over the country. Every person that ever met Mr. McCall was thereafter his friend. He was a man who understood human nature and, being always ready to please, knew just the kind of a conversation that would be interesting to the person conversing with him. His pleasing personality, his numerous friends and wonderful memory for faces and names were remarked at every convention or meeting which he attended.

William A. McCall was born in Chicago on April 19, 1876. He was known almost universally to the building material trade as good, plain, old fashioned "Mack." To others he was known as "Billy," and among those who held him dear and did not wish to use a nickname in addressing him he was known as "Will." His father was a seafaring man and sailed the Great Lakes as a captain. When a boy "Will" accompanied his father on many of his trips and learned the history and experience of sea-life from men who made it their business to continually travel from port to port upon the Great Lakes.

When fourteen years of age young McCall secured a position in a Chicago lumber yard and remained there until he became office boy of the old "Timberman," thus entering the trade newspaper field at the early age of fifteen. This was in 1892. Five years later the "Timberman" was consolidated with the "Northwestern Lumberman," the resulting publication being the present "American Lumberman." Mr. McCall was one of the employes who went with the "Timberman" force to the office of the new publication. He remained with the "American Lumberman" until 1902, when he engaged in the picture frame business. A year's experience was enough to convince him that his interest and enthusiasm was not in the picture frame business, but in the publishing line.

It was J. E. Defebaugh who hired him as an office boy in 1891 and who remained as his employer until he left the "American Lumberman." The interest he took in his work and the loyalty he showed his employer brought him the respect and admiration of the entire Defebaugh family.

It was but natural, therefore, that when Edgar H. Defebaugh met him shortly after he gave up his picture frame business that a position as manager of ROCK PRODUCTS was offered him. This publication was at that time being published by Mr. Defebaugh at Louisville, Ky. The proposition was accepted and for three years Mr. McCall was manager of the Louisville office.

He left in the spring of 1907 for Chicago and on July 22 of that year, in conjunction with William A. Radford, published the first issue of the Dealers' Building Material Record, of which publication he was general manager and part owner. Together with one of his employes, George A. Olsen, (who for the past two years was editor of the Record) he purchased the publication on Jan. 30. On Feb. 1 it was consolidated with ROCK PRODUCTS.

On April 9, 1902, Mr. McCall married Miss Margaret Casselman, whose friendship and affection for him was developed in connection with their labors in the publishing line through several years of daily contact in the same establishment. She was always his best partner and a great help in all of the problems that were so well understood in their common interests.

In addition to his widow, Mr. McCall leaves to mourn his loss his mother, Mrs. Julia McCall, and one sister, Miss Minnie McCall. He died at the age of 37 years, and his body was buried at Mount Carmel Cemetery. The pallbearers who carried him to his last resting place were chosen from men with whom he had worked during his business career. They were: Henry Lovely, representing the "American Lumberman"; Charles R. W. Edgecombe, representing the Radford Publications, and F. Guy Pulley, H. P. Sorensen, Fred Kensel, and George A. Olsen, representing ROCK PRODUCTS.

William A. McCall

Well-Known Publisher, Whose Interest in Building Materials Made Him Popular With Men in these Industries, Passed Away February 22, 1914.

In the death of William A. McCall, one of the most noble and well informed men attached to the building material industries has passed, and manufacturers and dealers alike are called upon to feel his loss. He was a credit to these industries and to the various publications with which he was at different times affiliated. His advice and counsel were always conservative and of great benefit to the trade and through the instrumentality of his faculties the industries have been greatly elevated. While his life on earth was of short duration he accomplished a great deal of good through the work of others, and never sought credit for what he did. A man of such calibre was a blessing to humanity and to the industries with which he was connected. His life was spent in order that the cares and burdens of others might be lessened, and that their lives might be made happier. How fitting the words of our Divine Master, "Well done, thou good and faithful servant; thou hast been faithful over a few things, I will make thee ruler over many things; enter thou into the joy of thy Lord."

The memory of William A. McCall will be long cherished by hosts of men in the building material lines who have learned to know and love him as a friend; and all of these now join with us in extending sympathy and condolence to the family in our sad bereavement.

Announcement of Death Comes as Shock.

Announcement of the death of Mr. McCall came as a shock to his many friends. Expressions of sympathy were heard on every hand and letters are reaching this office in every mail. A few of those received just as we go to press are as follows: Joseph Mitchell, secretary of the McLaughlin Building Material Company, Chicago, writes: "We wish to extend the sincere sympathy of the officers and management of this company on account of the death of William A. McCall. Mr. McCall was honored and highly respected by our entire staff and we certainly regret his untimely death. Kindly extend our sympathy to his family and associates."

"I am indeed shocked at the announcement just received of the death of William A. McCall," says J. Freeman, manager of the Northwestern Clay Manufacturing Company, New Windsor, Ill., "Just one week ago we saw him

in apparently the best of health and now all dealers and manufacturers of building materials are called to feel the loss of one of the best friends the business had as well as a most genial and wholesome friend personally. His associates in the business outside of the Dealers' Record and ROCK PRODUCTS join with you in sorrow at his loss."

"We are very sorry, indeed, to learn of the death of your manager, Mr. William A. McCall. 'Mac' was well known to us and we mourn his loss deeply," says J. E. Bowen, secretary-treasurer of the H. M. Reynolds Asphalt Shingle Company, Grand Rapids, Michigan.

Carl Walter, sales manager of the Hocking Valley Products Co., Columbus, Ohio, writes: "It is with profound regret that we learn of the death of Mr. William A. McCall and the suddenness of it comes as a distinct shock to the writer, who had the pleasure of knowing Mr. McCall personally. We recognize your great loss and sincerely sympathize with you."

R. Marshall, business manager of the Concrete-Cement Age, Detroit, Michigan, deplores Mr. McCall's death in these words: "It was a sorrowful surprise to learn of Mr. McCall's death. Your announcement came at an uncanny time as I had just written a letter to your office marked for 'Mac's' attention congratulating you all on the consolidation. 'Mac' passed over, it seems, just as things had started to break right for him. He was a 'white' man through and through and all of us here are mighty sorry to know that he has left us for good. His loss will be felt by the field at large as well as by your organization."

H. E. Hendricks, director of the department of public works, city of Deleware, Ohio: "For many years, during my connection with the Scioto Lime & Stone Co., I have known William A. McCall, and it is with profound regret I learn of his sudden death. He was a man of worth and one well liked by all who knew him. I extend to you my sympathy in losing so capable and good a man."

S. C. Kelly, general manager of the Kelly Plaster Co., Sandusky, Ohio: "I always enjoyed Mr. McCall's company and had a very pleasant visit with him on Wednesday, Feb. 18."

I. J. Weatherford, of the Nebraska Material Co., Lincoln, Neb.: "We wish to extend our deepest sympathies to yourselves and the bereaved family. Mr. McCall was a man who will be missed by the building material dealers of the entire United States. To know him was to admire him."

Louis J. Moss, president of the Tri-State Builders' Supply Co., Memphis, Tenn.: "It is with deep regret that I learn of the death of Mr. McCall. It certainly was a big shock, especially to us who attended the National Builders' Supply Association, where the smiling face of 'Billy' was very prominent. I wish you would extend our sincere regrets to Mr. McCall's family."

C. E. Jewett, secretary of the Hocking Valley Fire Clay Co., Nelsonville, Ohio: "We learn with deep regret of the death of your esteemed manager, William A. McCall, and we, as a company, hasten to extend to you our sincere sympathy, knowing that your firm alone can realize to the fullest extent the loss that you have sustained."

C. A. Owens, of John D. Owens & Sons, Owens, Ohio: "I certainly regret to note the death of Mr. McCall. I wish you would extend to his friends and family my sympathies in their time of trouble."

W. A. Fuchs, advertising manager of the Lehigh Portland Cement Co.: "The writer personally, and the company as a whole, will feel the loss of Mr. McCall deeply and extend to you, his co-workers, our sincerest sympathy. Those who do their part toward making this world a little better place to live in are none too many and their loss will always be a matter of regret."

F. L. Hopley, of the American Clay Machinery Co.: "Mighty sorry to hear of the death of Mr. McCall. He was a fine fellow and I counted on his friendship for quite a number of years yet.

A. B. Meyer, president of A. B. Meyer & Co., Indianapolis, Ind.: "The announcement of the death of your Mr. William A. McCall comes to us as a surprise, especially after learning from your Mr. Defebaugh that the recent consolidation would be a beneficial proposition from the standpoint of the managing force. Therefore, no doubt this vacancy will be felt and we extend our sympathy to his fellow co-workers."

PORTLAND CEMENT AND RETAIL DEALER

Address Delivered Before the Annual Convention of the Southwestern Lumbermen's Association at Kansas City, Mo., Jan. 30, 1914.

By William Walter Smith.

The members of the Southwestern Lumbermen's Association, both as individuals and as an organization, have done a work in the development of this great Western and Southwestern country of which you may well be proud. Some of you recall the time when many of your customers lived in sod houses. Incidentally the sod-house farmer was not a good customer. The same is true of the man whose home was the log cabin. From a business standpoint, these men, fine as they were, were not good customers—they had not the means to purchase building materials and had, therefore, to be content with sod and logs. But by pluck and ambition they wrung their wealth from the soil and are today living in comfortable homes built of materials which you have sold to them. However, in your business transactions, you have been more than mere salesmen of building materials. Many a man you have carried on your books when his livestock was wiped out by blizzards, or his crops burned up by hot winds or carried away by floods. You have been banker. You have been general adviser. You have always stood ready to tell your customer what was best for his interests. Why? Because of your knowledge of this fundamental business principle: "The greater the wealth of a community, the greater its purchasing power."

It was undoubtedly with this basic principle in mind that you began to handle Portland cement. The people demanded it. You supplied them. Glance over your books for the past ten years and you will find that your general business has increased in about the same proportions as your sales of Portland cement. Gentlemen, the cement industry is proud of its product. It is likewise glad to have as retail dealers such well-informed and broad-minded men as comprise the Southwestern Lumbermen's Association.

The present importance of Portland cement as a building material may well be understood by the fact that from 1900 to 1913 the consumption has increased from 8,500,000 to 89,000,000 barrels. Undoubtedly there is a great demand for cement, and its use is benefitting not only the general public but also the retail lumbermen, both directly and indirectly. The fact that concrete foundations are permanent encourages the farmer to invest more money in a good corn crib or any other building. The retail dealer sells him not only more and better lumber, but also the sand, the gravel, the crushed rock and the cement for the foundation. Moreover, without loss of time in waiting for masons, the carpenter can make the forms, mix the concrete, and build the foundation for the crib.

Consequently in a year one carpenter can erect more structures which call for more building materials, supplied by yourselves. The same is true of a basement barn. Most certainly permanent foundations effect a saving for the farmer and increase his wealth. The wealthier a community, the better it wants to live. As a result the more it can buy, the more it will buy from the retail dealer. The farmer and ranchman are just as anxious to keep out of the mud as the town dweller, and cement sidewalks are good business everywhere for the building supply man.

Much as you hear about engineers who originated permanent concrete roads, I am inclined to think that some retail dealer first conceived the idea of concrete highways and advised this farmer to pave the alley-way between his structures so that he could haul feed from the silo. A good silo of any kind is a good investment. From this alley-way pavement of concrete most certainly originated the concrete feeding floor for farm animals. By means of the concrete feeding floor, such a saving in feed and time of fattening is effected that the United States Government has issued a free bulletin telling how to build them. This same bulletin treats of concrete manure pits, and concrete dipping vats for cattle, sheep and hogs. Dipping eliminates the cattle tick, the scabies-mite of sheep and vermin on hogs. The use of concrete for feeding floors, manure pits and dipping vats means just so much extra business dropped out of a clear sky into the lap of the dealer, for no other material but concrete is suitable for surface and underground construction. We of the cement industry from actual experience know that there are occasions when a man can't smile at the question, "How's business?"

At times it is rotten as punk and you feel just like saying so. To me it has been interesting to observe how some dealers, instead of wearing out their religion, "go gunning" for business. In the neatest lumber yard in many a mile, and not far from this city, I noticed some semi-circular wooden frames. To my inquiry the dealer replied: "Those are 'business boosters.' Nearly everyone around here wants a concrete storm cellar. Those half-circles are ribs for supporting the concrete in the roof until it hardens. I rent the ribs for one dollar—much cheaper than a man can make his own—therefore everyone who builds a storage cellar borrows my centers. Incidentally I sell the lumber for the forms, the cement and the sand and rock for the concrete. Sure it pays."

Other dealers use the same general scheme for concrete watering troughs for livestock, for cisterns, etc. By such means new customers are obtained, satisfied and held; and at the end of the year it all shows on the profit side of the ledger. Often a dealer can so interest a sidewalk builder, a carpenter, a mason or a mechanic that he will take up this small work in concrete construction. There is now a great demand for permanent concrete bridges and culverts. Why should not the local dealer sell the material, why should not the local contractor build the concrete bridges and culverts and thereby keep at home most of the money invested? Moreover, in connection with his yard, the retail lumber dealer often owns and operates a sand and gravel pit or a rock crusher. Such a business is very profitable.

Cement manufacturers are interested in cement even after the order is sold the local dealer. Cement is a material very sensitive to moisture. It is purposely made so. Therefore all moisture must be kept away from it until water is added in making the concrete. To prevent "caking" of cement in bags, every cement dealer should have a perfectly dry storage house. Such a building is not expensive and is a paying investment. The roof must not leak. The sides must be proof against driving rains and sifting snows. The floor must be entirely clear of the ground and all danger of dampness. Better still is a double floor—a false floor laid over the regular floor. The structure should have at least skeleton lining so that the piles of cement can not touch moist outside walls.

"Caking" of cement occurs generally in winter. This action is both easily explained and prevented. You have seen drops of water gather on the outside of a pitcher of ice-water on a hot day. Those drops of water are formed by the vapor or steam in the air being condensed on coming into contact with the cold surface of the pitcher. The caking of cement is produced in a similar manner. Prolonged cold weather brings the cement down to the same low temperature as the outside air. Sheltered by the shed, there it remains. During the mid-day, or in a warm period, the doors and windows of the cement house are thoughtlessly left opened. The moist, warm air enters, strikes the cold bags of cement—and here again we have the pitcher of ice-water on a warm day. The small drops of water form but are immediately absorbed by the dry cement. Thus the bags of cement cake.

To prevent caking never store cement where it will be subject to drafts, as in the open driveway of a double shed. Keep all windows and doors closed all the time except when in use. Pile the cement so that there will be as little air-space as possible between the bags. Many dealers report good results from a piling method known among brick masons as "headers and stretchers."

As time goes on more and more cement will be used. Newspapers and magazines of all kinds tell of the uses of concrete. The public demands this information. We all must keep step with the march of progress. Whenever your customers want information about concrete, write the cement company whose brand you handle. They will supply you, free of charge, with bulletins and small plans which will increase your business. As a dealer's orders for cement increase, quite naturally he will be given more consideration, more accommodation and more protection by his cement company.

Most certainly do concrete foundations, concrete feeding floors, concrete bridges and concrete improvements in general tend to increase the wealth of a community. So bear continually in mind this basic business principle proven throughout all civilization. The greater the wealth of a community, the greater its purchasing power and the greater its desire for permanent improvements. In other words, prosperity is always passed around.

NATION'S DEALERS ATTEND CHICAGO CONVENTION

Sessions of the Fifteenth Annual Meeting of the National Builders' Supply Association Well Attended—Edward K. Cormack Elected President.

With an attendance that tested the capacity of the East room of the Hotel LaSalle, the first session of the Fifteenth Annual Convention of the National Builders' Supply Association was opened at Chicago Tuesday morning, Feb. 17, with Acting President Charles Warner in the chair.

Immediately after opening the first session of the convention, Mr. Warner submitted his report, which is as follows:

Acting President's Report.

"We meet again under conditions that both sadden and gladden us. Out late president, Edward S. Walton, who so cheerfully accepted the responsibility of this position but a year ago, at New Orleans, has gone forever from our councils. He was one of our most steadfast and active members, from the inception of this organization up to the last. His loyalty, good cheer and unique personality made him friends everywhere. Though blunt at times, he was one of the warmest-hearted men I ever knew. This admirable trait of sympathetic feeling showed itself many times and in many ways during my years of personal acquaintance. We have lost a warm friend and constant supporter of our work. For he believed strongly in the value and importance of the National Builders' Supply Association, hoping that some day our organization would grow to that size and sphere of influence possible from a unanimous support by all dealers. So it has been with a sad heart that I have temporarily filled this vacant position for the past few months until the time of this national convention permits the election of a permanent president.

"During the past year material progress has been made to establish the policy of coöperation with and support from various state and district organizations of dealers in building supplies. During the spring and early summer I attended several meetings at different points with our late president, when the issues were fully discussed with committees from the New England, New York state, New Jersey and Ohio bodies.

"Active assistance was had from several members of the National Board in this direction.

"The New England committee reported favorably but their recommendation will not be considered by the New England Builders' Supply Association until their annual meeting next week.

"The New York state committee reports progress without reaching the deciding stage.

"The New Jersey committee reports lack of interest among their members to the policy of joining hands with the National.

"The Ohio committee and association have approved and accepted the plan of coöperating and this is now being made effective, carrying into the National many new members, additional financial support and delegate representation from Ohio to our National meetings.

"The newly-formed Indiana association has also expressed its approval and intention to join on these lines.

"Summing up, while not as extended as desired, the principle of developing the National into a delegate body and connecting it directly with the state and district organizations, has received a definite start and a few years of steady efforts on these lines should successfully accomplish this plan. It is so desirable that our National members in all sections should constantly work to this end in their local territory.

"With the dues of our organization reduced to $10.00 per annum, it cannot be expected that your officers can do much to advance the dealers' welfare between conventions until such time as our membership and revenue therefrom may be largely increased. We have endeavored, though, to make this convention most complete by providing a 'round dozen' of important subjects for discussion today and tomorrow. Our entertainment committee has also laid lines for a unique affair to 'top off' our solid food with a new and attractive desert.

"I, therefore, believe that the next 48 hours will provide a series of educational papers and discussions of large value to the earnest and progressive dealer who has attended this convention for the purpose of learning how to better his business.

"As our program is extended, it will require prompt handling to carry it through on schedule. I urge that you and all of your friends arrive at this hall at the hour of 2:30 this afternoon and 10 a. m. and 2:30 p. m. tomorrow. We cannot handle our business affairs expeditiously and satisfactorily unless you will each do your part to arrive promptly and bring your neighbor in the lobby with you.

"One of the important addresses to be heard at this convention is that of Herbert N. Casson, of New York, a man who has successfully started many organizations and placed them in a strong position. His address will cover suggestions to aid us in building a larger and better National Builders' Supply Association on the foundation already established. If his suggestions can lead us to a doubled membership in 12 months, which he believes possible, we will be greatly indebted."

Following the president's report, a list of applications for membership was read. All applicants were elected to membership.

Secretary Frank J. Davis read his report, which was accepted.

A nominating committee, consisting of Frank Kinney, Cincinnati, Ohio; W. W. Nichols, Peoria, Ill., and J. J. Voelkel, New Orleans, La., was appointed just previous to the close of the morning session.

Afternoon Session.

President Warner called the second session to order at 2:30 p. m. He said in part: "The first gentleman to talk this afternoon is one to whom we are all deeply indebted for the work he has been doing the past two or three months to shape up the entertainment of tomorrow evening, and it seems somewhat of an imposition to throw on him the additional responsibility of giving an address on a topic in today's session, but like a willing horse, he has taken on the big load. I take pleasure in introducing Mr. Edward K. Cormack of the Wisconsin Lime and Cement Co., Chicago, and we will be glad, I know, to hear the subject he is going to talk on this afternoon, namely, 'Trade Association Principles in Our Business.'"

J. J. VOELKEL, J. J. CLARK CO., NEW ORLEANS, LA., WHO WAS CHOSEN TREASURER OF THE NATIONAL BUILDERS' SUPPLY ASSOCIATION.

Mr. Cormack spoke as follows:

"I have attended a great many conventions of one kind and another, and have painfully listened to hardened criminals tell of the crimes and evils that afflicted the building supply business. I have listened to addresses on the ethics of business, price cutting versus salesmanship, good fellowship and get-together ideas, and these addresses and talks have been delivered by some of the worst offenders of the thing the speaker condemned.

"The only way I could account for the contradiction between the speaker's words and actions, was by recognizing that even in the worst of us there is a spark of good, and the spirit of the man was willing to do what is right, but his flesh was weak, and consequently his efforts to reform others fell flat. You know it has oft-times been said that the devil can quote scripture and reprove sin, but in no case do we find his preaching of the gospel converting many sinners.

"Trade organizations are all right, and it is a fine thing to see the lion and the lamb sit down and lunch together instead of off one another, but if good fellowship and efficiency is all they are allowed to talk about, there will pretty soon not be any lamb.

"As it is at present, the members of trade organizations act a good deal like a couple of Scottish elders meeting in front of the country church on the Sabbath morning. 'Tammas,' says the first one, 'If it wasna' the Sabbath, how much would you take for the Jersey calf you have?' 'Jock,' replies Tammas, 'If it werena' the Sabbath I would ask twa pound five.' 'Tammas, all I have to say—if it wasna' the Sabbath I would give you twa pound.' 'Ay, mon,' was the reply, 'and if it werena' the Sabbath I wad sae I'll be over in the morning and bring the calf.'

"Now, we all know how in the trade association meetings, Mr. Merchant says, "Well, you fellows can do what you like, but my price is so and so." But if you take him at his word and do what you like, and your likes and dislikes do not coincide with his, then the merry war is on.

Now then, what is the remedy? If as a boy, your father had allowed you to sit down with him and smoke that first pipe or cigar, you would have had no desire or incentive to sneak out behind the barn and carefully extract from the hiding place the pipe you dreaded, yet thought you ought to indulge in, simply because it was forbidden fruit.

And the remedy I propose is that the government shall sit down with us, and permit us to smoke the pipe of price maintenance under their careful supervision. This idea may seem treacherous to our present code of morals as propounded by the law of the land, and I fancy I hear some one say, 'Why this is Socialism that Cormack is preaching.' You can call it anything you like. Many a good cause has been damned and retarded by a bad name. As stated, I don't care what 'Ism' you call it. I call it common sense, and as such it is. Nor am I alone; in fact, I am in good company. Listen to this:

"Just the other day Charles R. Van Hise, of the University of Wisconsin, in a speech at Washington, D. C., is quoted as having made the following statement:

"'That the coal mines could produce 200,000,000 tons more coal per year than the market demanded, but that the operators, regulated by the Sherman act, were compelled to handle their mines without coöperation in limiting the output, dividing territory or regulating prices. Such practices result in mining in a wasteful fashion, working thick veins and neglecting the thin veins in order to get coal to the market at the lowest possible cost. If the operators could agree upon limitation of output so as to reduce freight, and could arrange for reasonable prices which would give them no more than their present profits, they would exploit coal conservatively, and they would be the gainers in prolonging the life of the mines for future generations.'

"In an address recently delivered before the Illinois Manufacturers' Association, Mr. Samuel Untermeyer, the famous New York attorney, spoke as follows:

"'I regard the establishment of an Industrial Commission (into which the present Bureau of Corporations should be merged) and the enlargement of the powers of the Interstate Commerce Commission as fundamental requisites to any effective scheme for enforcing the segregation of unlawful combinations under the Sherman act. Whether the Interstate Commerce Commission should be authorized to permit reasonable pooling agreements between railroads and whether the proposed Industrial Commission should be empowered to approve contracts between business competitors fixing prices and output between the contracting parties to pro-

tect them against ruinous competition, are debatable questions that must be met and solved in the near future. Only those competitors will join in such an arrangement as choose to do so, leaving the others still free to compete. The Commission would be authorized only to approve agreements where the price fixed is not above actual cost, and that the agreements thus approved would operate only to furnish business a lawful refuge against ruinous and annihilating competition, and only to those who invoke aid; that compulsory destructive competition is an economic curse and not a benefit; that it must inevitably end in monopoly; that competitors will not in any event obey, and cannot be forced to respect a law that compels them to ruin themselves, and that unless they are furnished open, lawful means of relief they will shield themselves behind secret illicit methods, as is now being done; that as distinguished from the results of trusts or consolidations competition will still be maintained between the parties to such agreements in reducing the cost of productions, as each will reap the benefits of his own economies, and will thus have the incentive to utilize the most improved appliances and other means of reducing costs; that none of the evils of stock watering or exploitation, closing of plants, etc., that have been attendant upon the organization and flotation of the trusts and that have served as the incentives for exacting huge profits to pay dividends on fictitious capital would be involved in or be permissible under these arrangements, and that they would do away with the excuses that have been urged in favor of combinations as a necessary measure of self-protection. It is further argued that as such agreements would necessarily be approved only for short periods and subject to constant revision by the Commission the parties would be forced to retain their separate organizations in effective condition in constant readiness to resume unrestrained competition whenever they fail to agree among themselves or to subscribe to the conditions imposed by the Commission.'

"So much for the opinion of one bright legal light of this country—one who sees the handwriting on the wall.

"A long step was taken in this direction when the railroads of the country were compelled to treat all alike, and now the only competition between two parallel lines of railroads is the competition of service, for our government has officially recognized that the competition of price is an evil thing and must be stamped out.

"Our trade unions have something more than a gentleman's agreement in regard to the price maintenance, and woe betide the unfortunate individual, whether he be a member of their union or not, who cuts this price and sells his services for less than the scale adopted by and agreed to in the union councils.

"Our government has also recognized the justice of this theory by going on record that the government funds must not be used to prosecute the union for throttling competition and maintaining prices. The equity of our contention that we should be allowed to establish and maintain a minimum price for our merchandise is borne out by the consideration of the fact that the value of our wares chiefly consists of the amount paid to the two classes already cited.

"The building supply business is a business of tonnage, the value of its material consisting almost exclusively of labor and freight—labor at the factory, freight to bring it to the distributing center, and labor at the distributing center delivering it to the building site. Deduct from your selling price what this freight and labor amounts to, and you will find a very small margin left.

"Now then, it has already been stated that the government compels the removal of price competition from the railroads, and permits the removal of price competition from the union. Is there any justice or equity in the argument that the building supply men of a community should not be permitted to get together and say, "Our freight and labor amounts to so much; it costs us so much to do business, and therefore the minimum price at which an article shall be sold in this territory shall be established and maintained?" There would be no objection to a government official approving of the price so established, even as the Interstate Commerce Commission approves of the railroad rates. But what we do want, and what we must have, is the right to contract, one with the other, towards the keeping and maintaining of the price so established—a contract carrying with it suitable penalties for its violation—penalties which can be enforced in the courts. I would not go the length of making it compulsory that the merchant in the same class should be compelled to join the trade organization, but I would make it compulsory that having once joined, they stay in. Who benefits from the cut-throat competition? No one. Who benefits from the constant fluctuating of prices? No one. What you as dealers, and what your customers as contractors are interested in, is in seeing that no one buys for less than you do. You demand being placed in this respect on an equal footing. You are willing and eager to compete in regard to the things that you control, such as labor-saving movements, greater efficiency, etc., but your raw material and the things you do not control must come to you on equal terms.

EDWARD K. CORMACK, OF THE WISCONSIN LIME AND CEMENT CO., CHICAGO, NEWLY ELECTED PRESIDENT OF THE NATIONAL BUILDERS' SUPPLY ASSOCIATION.

"This is not alone the fight of the manufacturer and the dealer. It is the fight of his banker and every one interested in the prosperity of an industry. Capital and Labor are not attracted to any industry that is in the tumult of price cutting and its attendant personal hatred. And talking about capital—where can you find a better illustration of trade union principals than in the rules under which the associated banks of a clearing house work.

"We have admitted the evil. We assert the trade union idea, as applied to business, is the remedy. How are we to get it?

"An editorial in a recent weekly made this statement:

"'All legislation is political first and personal second. The men who make the laws primarily for their own party and political advantage, and secondarily for whatever advantage may slop over for the country.'

"We must make our lawmakers see that it is for their party and personal advantage that competition be transformed from sharp and unscrupulous business methods to the basis of quality, merit and service.

"I think there are enough people in this country thinking as I do on these lines, to demand that our ideas be given an honest trial. Who of us today would wish to go back to old days of railroad rebates, or in other words, shop with the railroads as our customers now shop with us?

"My only desire in bringing this subject to your attention is that you may think about it, talk about it, and thus create the sentiment for it that will make it the law of the land, and I can conceive of no better work this Association can do than to throw its influence behind a movement of this kind. I firmly believe that if the matter is honestly and intelligently presented to the trade unions of the country, they would be one with us in endeavoring to secure the Federal Trade Commission.

"Gentlemen—this thought of co-operation, not competition, is in the air, and the time is ripe for putting on our statute books a law permitting price maintenance and compelling the complete stoppage of discrimination between buyers. A movement such as this would make impossible the organizing of large and top-heavy corporations, which are slowly but surely grinding the life out of the little fellow. The little fellow would have all the inducement in the world to embark in business, knowing that his large and gigantic competitors would not be allowed to ruin him by making a cut-throat price, and the small merchant, by strict attention to the efficiency of his business, would be able to compete, and successfully compete in the competition of service, because all his faculties could be centered on that one thing instead of as it at present is, centered on the rise or fall of the market."

At the request of C. M. Ray, president of the United Fuel and Supply Co., of Detroit, a resolution was spread upon the minutes, paying a tribute to the memory of C. H. Little, who was the first president of the Association and until his death a few months ago, president of the C. H. Little Co., of Detroit. It was also voted to send a copy of the resolutions to his family.

Charles W. Burroughs, president of the National One-Cent Letter Postage Association, delivered an eloquent address, in which he urged the dealers to work for a law which would permit the mailing of a first-class letter at one cent, in place of the two cents as now charged.

At the conclusion of his remarks, Walter Jahncke, of Fritz Jahncke, Inc., offered the following resolution, which was adopted:

"Whereas, there is now, and for years has been, a large net profit on first-class mail and whereas such profits have been entirely dissipated by the losses incurred in handling other classes of mail at less than cost of service, thus working an injustice on all users of first class postage, therefore be it

"Resolved by the National Builders' Supply Association that a one-cent rate for ordinary letters should be accorded, at once, to all users of the letter mail, and we, therefore, ask members of Congress to support Senate Bill No. 152, introduced in the United States Senate by Hon. Theodore E. Burton, and House Bill No. 4322, introduced in the House of Representatives by Hon. Charles L. Bartlett for one-cent letter postage measures, and to use their efforts to secure the passage of these bills with as little delay as possible.

"The secretary of this body is hereby instructed to send copies of this resolution to our senators and representatives, and also to do everything within his power, by correspondence, publicity, etc., to accomplish the results which the National One-Cent Letter Postage Association is endeavoring to secure."

Hitchcock on Plastering Materials.

Before introducing the next speaker, Acting President Warner made these remarks:

"The next paper we will take up is on a question of arguments of two general building materials in use these days for plastering work. I want to say before calling on the gentleman who is to address us on this subject that it is not the aim of the officers to present any one-sided proposition or to permit any specific advertising of any specific brand of materials. We want to get at the facts. These meetings are to get at the truth of any subject that will be of value to us in conducting our business. If, in the address that is now to be given there are some counter facts or views to be presented, we will be glad to hear from the other side of the story in one or two short addresses following the article. I make this statement because some of the gentlemen thought an unfair advantage was being taken."

Lawrence Hitchcock, general sales manager of the Kelley Island Lime and Transport Co., of Cleveland, Ohio, then delivered an address on "Hydrated Lime Versus Gypsum for Plastering." He spoke in part as follows:

"The changes in building construction and the resulting changes in the materials that building supply firms have handled is very interesting. As one looks back over our present iron and steel age to the bronze age; and from the bronze to the stone age—the periods of growth are quite marked. And in no line of industrial work at any time are those periods better indicated than by the transition in the buildings and homes of the inhabitants of those

periods. From the caves and mud huts of primeval man to the steel skyscraper of today is a big change. And as the buildings changed the material in the buildings changed. It was an upward industrial step from the solid mud baked hut of the earliest savage to the straw-made sun-dried brick construction of the ancient Egyptians, and yet how inferior was this step to the modern pressed and vitrified brick of today.

"Everything is in a process of continual evolution—even we ourselves don't escape, but the human race continually changes like everything else—from the original monkey of Darwin to the human being of today is quite a change—and a big evolution. Living conditions effect the change in the human being.

"Through all this long period of evolution, lime has been one of the main materials that has gone into the construction of buildings. Its manufacture and uses were known to the most ancient races. Its characteristics, such as the way a lime putty should be made, were known in the earliest history of the race. The pyramids, built 5000 B. C., used lime mortar in the construction of their inner chambers. The earliest Chinese, the Phœnicians, the Incas of South America—the whole world over—lime mortar has been a well-known and generally used product in building construction. If the Bible spoke of the material first used in the tower of Babel, you would probably find that lime mortar was used in it.

"It is interesting to observe how even in the earliest times the proper treatment of lime was well known. One of the old general Roman laws passed centuries ago stated that it was compulsory for builders to slake and make a putty of their lime and leave it for three years. The proper use of lime was very important to the Romans, as practically all their buildings were made of a combination of it and a volcanic stone called trass.

"Through all these periods there were innumerable uses for lime, but the main one in construction work was for making a mortar for laying of brick, etc., and a mortar for interior plastering. There is only time to go into a discussion on one of those uses and that is on its use for interior plastering. In the United States in the evolution of the building materials used, the use of gypsum hard wall plaster has crept into prominence. It is only in the last few years that lime manufacturers in this country have been able by chemical tests, etc., to develop the use of hydrated lime so they could make hydrated lime material put up in bags which could be delivered to the dealer and overcome the three-year slaking which Romans thought necessary. That is what has been done in the manufacture of hydrated lime.

"Lump lime or ordinary quicklime for commercial use is made from limestone in this country. It can be made from marble, oyster shells and a great many things. In burning there is about 50 per cent driven off, which leaves commercial quicklime. If you take lump lime and pour water over it the lime goes to pieces and breaks down to a fine powder and as water is added turns into putty. The whole principle of manufacturing hydrated lime is the fact that process is stopped when lime is slaked to that fine point and before an excess of water is added."

Referring to a chart, Mr. Hitchcock read these sentences relative to the similar points of the two products:

"Both are delivered either neat or sanded in sacks on the job.

"The average cost per ton is about the same.

"Neither will blister or pop.

"Both overcome the objection to old-fashioned lump lime plaster.

"Both harden and dry rapidly enough so that the brown or finishing coat can be put on without delaying the plastering work.

He also elaborated on the dissimilar points, after which Walter F. Jahncke, of New Orleans, La., and James H. Allen, of the Nebraska Materials Co., Lincoln, Neb., asked a few questions and started an interesting discussion.

The meeting adjourned at 5 o'clock to enable the executive committee to hold a session.

Election of Officers.

The Wednesday morning session of the National Builders' Supply Association opened at 11:00 o'clock with Acting President Warner in the chair. After an amendment to the by-laws, proposed by W. A. Rabbe, was unanimously carried, the president asked for the report of the Nominating Committee from Chairman F. H. Kinney.

The committee's report follows: "Mr. President and Gentlemen of the Convention: The nominating committee is ready to make a report and I would like to preface the report with these remarks. The names of persons submitted are persons who have been conversant with everyone and prominent in associations, and I believe I can say without exception that no man here will take offense. If we have organization, we must expect every man to do his duty, and not leave it to others to perform the duties. Year by year we should, in a way, take up and form good organizations, but every man must be willing to do his duty.

"The man we nominate for president is a man who devoted a good deal of time to entertain and provide for the pleasure of the gentlemen here, and a man who has been connected with the organization that fully stamps him as a person in every way equipped to handle a large organization. We have the utmost confidence in him and it is with a great deal of pleasure we submit for the office of president the name of E. K. Cormack, of the Wisconsin Lime & Cement Co., Chicago, Ill.

"The man for treasurer is a gentleman that devoted a good deal of time toward the entertainment of this convention at New Orleans last year; and, while he was a member of the nominating committee, it was against his own wishes that his name was put on the list. We feel he should be recog-

W. T. DUGGAN, SANDUSKY PORTLAND CEMENT CO., CLEVELAND, OHIO, WHO READ PAPER ON "SHOW ROOMS AND THE SPECIALTY DEPARTMENT."

nized as one of the officers by the nominating committee. I refer to J. J. Voelkel, of the J. J. Clarke Co., New Orleans, La.

"Members of the Board of Directors are submitted as follows: First, a gentleman that has for years been connected with our organization and has done elegant work, J. H. Allen, of the Nebraska Material Co., Lincoln, Nebraska; Charles Warner, of the Charles Warner Co., Wilmington, Del., and C. N. Ray, of the C. H. Little Co., Detroit, Mich.; W. F. Jahncke, of the Jahncke Navigation Co., New Orleans, La.; C. M. Kelley, of the James C. Goff Co., Providence, R. I.; W. W. Coney, of Moores-Coney, Cincinnati, Ohio; L. W. Macatee, of W. L. Macatee & Sons, Houston, Texas; D. J. Kennedy, of D. J. Kennedy Co., Pittsburgh, Pa. In reference to Mr. Kennedy, beg to say the laws of Pennsylvania require one of the directors to be a resident of the state, so it is absolutely essential that he be elected, as we are incbrporated under the laws of Pennsylvania. We submit his name as the ninth member and subject to approval under the new plan of state organization. Inasmuch as the state of Ohio has become a part of the National Association, and has a state association, the board of directors recommended the amendment just passed. We submit the name of R. E. Doville, president of the Ohio Builders' Supply Association, and a resident of Cleveland. We submit his name with the understanding that the association itself can elect another man if they see fit.

"For vice-presidents, the names of A. C. Davis, Montgomery Lime and Cement Co., Montgomery, Ala.; D. T. Hargrave, of D. T. Hargraves Co., Helena, Ark.; Frank H. Johnston, of City Coal & Wood Co., New Britain, Conn.; Charles C. Bye, of the Charles Warner Co., Wilmington, Del.; S. Dana Lincoln, of the National Mortar Co., Washington, D. C.; N. H. Partridge, Colorado Builders' Supply Co., Denver, Colo.; W. W. Nicol, Peoria Fuel Co., Peoria, Ill.; A. E. Bradshaw, Indianapolis Mortar and Fuel Co., Indianapolis, Ind.; Frank Perkins, Des Moines Fuel and Lime Co., Des Moines, Iowa; E. H. Michel, Salmen Brick & Lime Co., New Orleans, La.; William A. Rabbe, Kenton Supply Co., Covington, Ky.; J. J. Kelly, Jr., National Building Supply Co., Baltimore, Md.; B. F. Marsh, Worcester, Mass.; S. A. Morman, S. A. Morman Co., Grand Rapids, Mich.; R. E. Bost, Natchez, Miss.; Howard McCutcheon, of C. A. Brockett Cement Co., Kansas City, Mo.; McCaffery Bros., Omaha, Neb.; Walter C. Shultz, Charles A. Shultz & Sons, Hoboken, N.J.; Burton J. Mitchel, W. S. Humbert Inc., Niagara Falls, N. Y.; B. H. Wither, Charlotte, N. C.; George Gengnagle, Schaeffer & Gengnagle, of Dayton, Ohio; James M. Thayer, O. C. Thayer & Son, Erie, Pa.; Edwin D. Allen, Manchester & Hudson Co., Providence, R. I.; A. C. Gower, Gower Supply Co., Greenville, S. C.; L. J. Moss, Tri-State Building Supply Co., Memphis, Tenn.; Tovel Marsten, W. L. Macatee & Sons, Houston, Texas.; M. Givens, Fitzhugh-Givens Co., Charleston, W. Va.; H. H. Plummer, Menasha, Wis."

There were no other nominations made. Upon motion the secretary was instructed to cast a ballot for the association for the candidates for the various offices. This action received the unanimous approval of the association.

Acting President Warner appointed J. J. Voelkel, Charles M. Kelley and J. H. Allen to escort the newly elected president to the front.

President-elect Cormack, in speaking of the honor bestowed on him, said: "Gentlemen: I would hardly be human if I did not feel esteem and appreciation in your electing me at the head of such an organization as the N. B. S. A. is—and undoubtedly will grow to be. I cannot truthfully say that this comes altogether in the way of a surprise, as several fingers have been pointing it out to me for the last twenty-four hours. I tried to make it plain as possible to those gentlemen who won my confidence why it was not advisable that I be elected to this position. I do not wish to be discourteous or anything of the kind, and I think I tried to explain to you how deeply I feel the touch of confidence, but I do feel, gentlemen, that this step should not be signed and sealed without at least giving me a few hours to think it over, and if that would be acceptable (turning to the chair), Mr. Warner, I would like to leave the matter in that way."

Mr. Warner replied that there was such a very strong feeling about Mr. Cormack, that he hoped he would accept the position for at least the next year. "We all know how well you can fill the position and help boost the organization," said Mr. Warner. "The work required is not so much, with a secretary to take charge of the detail, and we hope nothing will arise to make you feel you cannot be our president for at least the year 1914, and I think we will have to leave the matter in that way, if there is any little question in your mind."

The following-named individuals and firms were elected to membership in the Association. Active membership is open to dealers only, while manufacturers may become associate members.

Active Members.

Louis J. Moss, Tri-State Builders' Supply Co., Memphis, Tenn.

John F. Denies Sons Co., Memphis, Tenn.

Herbert F. Geist, The Geist Cement Products Co., Cleveland, O.

T. W. Spinks, T. C. Spinks Co., Covington, Ky.

F. R. Dickinson, President Builders & Pavers' Supply Co., Detroit, Mich.

S. M. Hamilton, President Buffalo Builders' Supply Co., Buffalo, N. Y.

B. J. Mitchell, Wm. S. Humbert, Inc., Niagara Falls, N. Y.

German B. Buehrle, Youngstown, O.

W. S. Seng, San Antonio, Texas.

Miss Astrid Rosing, Harris Trust Bldg., Chicago, Ill.

C. T. Thompson, Calumet Coal & Teaming Co., Chicago, Ill.

Geo. D. Elwell, Albany Builders' Supply Co., Albany, N. Y.

W. J. Gilbert, Chicago Fire Brick Co., Chicago, Ill.

J. B. Tuthill, Treasurer Tuthill Building Material Co., Chicago, Ill.

R. M. Hereford, Murray Brooks Hardware Co., Ltd., Lake Charles, La.

B. H. Wither, Charlotte, N. C.

W. M. Rynerson, Builders' Material Supply Co., Kansas City, Mo.

A. H. McDaniel, Augusta, Ga.

W. E. Wright, Wright Eddy Co., Akron, O.

Elton R. Seager, Treasurer The Lake Erie Builders' Supply Co., Cleveland, O.

A. B. Knowlson, A. B. Knowlson Co., Grand Rapids, Mich.

Malcolm A. Thompson, Thompson & Steward, Duluth, Minn.
H. J. Conkling, Cincinnati, O.
W. L. Clippard, Little Rock, Ark.
R. P. Strickeon, Saskatchewan Supply Co., Ltd., Saskatoon, Sask., Canada.
E. M. Sunderland, Sunderland Bros. Co., Omaha, Neb.
F. O. McCaffrey, McCaffrey Bros. Co., Omaha, Neb.
N. H. Partridge, Colorado Builders' Supply Co., Denver, Colo.
L. C. Shepherd, The Building Materials Co., Evansville, Ind.
L. A. Painter, Dallas Builders' Supply Co., Dallas, Texas.
Karl E. Hormann, Moody-Hormann-Boelhamire, Inc., San Antonio, Texas.
P. B. Tucker, Norfolk Building Supplies Corp., Norfolk, Va.

Associate Members.

S. H. Barrows, National Kellastone Co., Chicago, Ill.
Gold Williams, Marquette Cement Mfg. Co., Chicago, Ill.
M. E. Squire, Allwood Lime Co., Chicago, Ill.
F. I. Howard, The Usona Mfg. Co., Aurora, Ill.
J. W. Boardman, Jr., Peninsular Portland Cement Co., Jackson, Mich.
C. R. Thomas, Sykes Metal Lath & Roofing Co., Niles, O.
John R. Collette, Kewanee Mfg. Co., Kewanee, Ill.
Fred A. Tobett, American Rolling Mill Co., Middletown, O.
Jas. M. Trigg, Majestic Furnace & Foundry Co., Huntington, Ind.
F. A. Mitchell, Ceresit Waterproofing Co., Chicago, Ill.
H. R. Wardell, H. W. Johns-Manville Co., New York, N. Y.
H. M. Clemens, Cannelton Sewer Pipe Co., Cannelton, Ind.
N. A. Aimer, The Heppes Co., Chicago, Ill.
S. C. Kelly, Kelly Plaster Co., Sandusky, O.

"Showrooms and Specialty Department."

W. T. Duggan, of Cleveland, Ohio, was called upon to read a paper on "Showrooms for Retail Dealers and Specialty Department Work," which had been prepared by Robert C. Mitchell, general manager of the Farr Brick Co., Cleveland, O.

Mr. Duggan, who at one time was quite a professional entertainer, displayed a good deal of wit in speaking of the reason why Mr. Mitchell selected him to read the paper, which is as follows:

"In discussing show rooms and specialties, I am assuming that a show room is maintained primarily for the exhibition of brick. What is a show room? It is a room or suite of rooms, more or less beautiful, into which a prospective buyer is invited and 'hypnotized' into believing that the completed wall will appear just as the panel, from which the selection has been made.

"In every large city, a large percentage of the architects appreciate the artistic and, for this reason, if the dealer expects to cater to this class of trade, through a display room, he must necessarily spend considerable money in the erection of same, and I hardly know of a first-class supply house in the country that is without an exhibit of some kind, occupying a large percentage of their floor space at a considerable annual rental. Sometimes the amount of money spent in this way runs into thousands of dollars. In the mad rush for supremacy, I have observed competition in exhibit rooms becomes a fixed factor in the business, with the result that a small fortune is annually spent in each important city in the United States.

"It is my opinion that each and every one of us are fooling ourselves. I can see no financial gain accruing from the exhibit room; in fact, it is my opinion that the demand for material is not in any way increased and the dealer is left with an added overhead expense to take care of each year. If you can consider it a good investment to continue your exhibit room for the purpose of selling a few mantel brick orders each year, then it would be unwise to abolish same. To be perfectly sincere, I can see no other excuse for the existence of a show room.

"Naturally, in each city, some one company has gained the reputation of maintaining 'the most elaborate exhibit room' and will undoubtedly secure a few more orders on that account than his competitors. However, the total volume of business thus secured will not compensate for the large investment. A broad-minded point of view, which should be taken by all of us, is 'What is best for all the supply houses?'

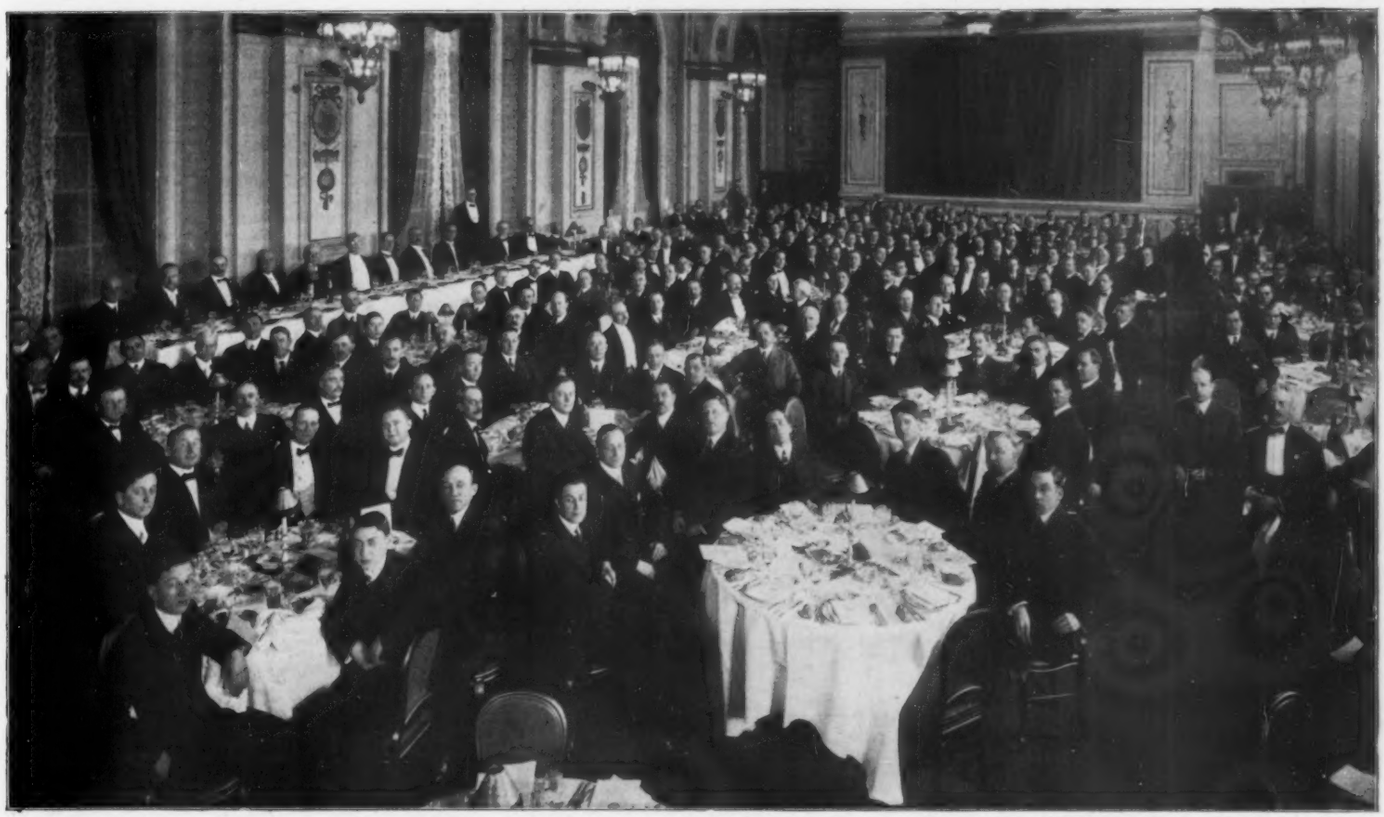
"I insist that we should all get together and agree to banish the exhibit room for all time to come. The resultant saving will offset the profit on a tremendous volume of business.

"It is, of course, necessary to secure from the prospective customer some idea of what he wishes to buy. For this purpose, I believe (assuming that no one in your city maintains an exhibit room) that single samples will suffice. In the introduction of a new brick, especially where the desired effect is secured through mixing of various shades, it would be necessary to show more than one sample. This would prove an exception to the rule and could be taken care of very nicely as the need presents itself. Under normal conditions, however, a neat rack of samples carried at the side of your brick salesman's desk will fulfill all requirements. To this should be added the advantage of showing your customer finished buildings and, if the order is large enough, taking him to the brick plant.

"You well know that at least 95 per cent of the successful termination of prospective orders depends upon the ability of your salesman. In this connection, I believe it good policy to engage none other than natural-born salesmen, and when you have secured such a man and expect him to assume responsibility, be careful to invest him with authority, proportionate to his responsibilities, and then do not make the mistake of dictating how he shall sell his goods. You managers are probably very clever business men, but how many of you, who engage a first-class salesman, can 'put it over him' when it comes to selling brick?

"Furthermore, I believe it unwise in cities where there are sufficient prospects, to burden your brick salesman with any other lines. His work calls for the highest possible talent and he should possess rare qualifications that are not necessary, for instance, in the handling of specialties. If you doubt this statement, go yourself and try to convince an educated church committee, composed of ten or twelve men and women, that they should use your particular brand of rough, red brick after they have practically decided on a speckled smooth, grey brick. The successful brick salesman must be a man of pleasing personality; he must be a gentleman who can feel at home with company not composed of gentlemen. He must be honest and at the same time diplomatic enough not to hurt the feelings of the grafter. He must be able to consume at least forty cocktails in an evening and yet talk like a sober man, at the same time agreeing with his manager that it is not necessary to drink in order to get business; in short, he must be everything the situation at hand calls for and yet maintain his dignity and 'bring home the bacon.'

"To substantiate my argument regarding the elimination of the exhibit room, I will take your traveling brick salesman for an example. You instruct him to go to some certain city for the purpose of 'landing' a prospective order. I ask you



FIFTEENTH ANNUAL CONVENTION OF THE NATIONAL BUILDERS' SUPPLY ASSOCIATION, HELD IN THE GRAND BALL ROOM OF HOTEL LA SALLE ON WEDNESDAY EVENING, FEBRUARY 18.

'Where is his exhibit room, and of what does it consist?' It comprises a few samples in a two by twice case. He is placed on an equal footing with all his competitors and his chance of success depends almost entirely on salesmanship. The purchaser is absolutely obliged to view the single samples and draw on his imagination for a picture of the completed wall. The same condition would exist in the city were the prospective customer unable to find an exhibit room.

"To illustrate the tremendous saving derived through the abolition of the show room, I will take my home town, Cleveland, Ohio, for an illustration. There are in my city eight exhibit rooms which show a total first cost for erection of $6,900. They occupy 7,200 square feet of floor space in our down town office buildings, at an average annual rental of $1.25 per square foot, amounting to $9,000 in all. To this should be added the expense of illumination and depreciation and the interest on the original investment; also, the money spent for the tearing down and erecting of various panels, caused by changes in agencies, or the fact that your factories have discontinued making certain shades of brick, or for any one of many other reasons. However, I will not use these figures in my argument, as I do not wish to be too severe with those of you who are still laboring under false impression that the exhibit room is indispensable.

"In Cleveland, (I do not know what the conditions may be elsewhere) our anual sales are averaging about 20,000,000 face brick at a profit of $2.00 gross per thousand. In order to overcome the annual rental expense of $9,000, we must dispose of 4,500,000 Face Brick or 22½% of the total sales. The profit derived from the balance of our sales of 15,500,000 Brick amounting to $31,000 must be divided among eight companies. Of course, if you can regulate the price (which I very much doubt) and make the public pay for the frills and feathers, there is nothing for us to worry about.

"However, the results show such a ridiculous state of conditions that I cannot help but feel that we are all amateurs in the management of this end of our business, and I insist that for the best interest of all concerned, we should, when we go home, tear down our Exhibits and either release floor space they have been occupying, or devote same to some other branch of our business which shows a larger percentage of profit on the investment.

"In view of the fact that I was in a large measure responsible for the expenditure of $3,500.00 for an Exhibit Room by the Cleveland Builders' Supply Company, with which concern I was affiliated until recently, it may seem to you that my arguments are inconsistent. To explain my position, I might say that before recommending this expenditure, I endeavored to have all the Face Brick dealers in Cleveland abolish their exhibits. Out of eight companies, seven agreed to my plan. It had to be unanimous, so with one black ball against us we found it necessary to erect an Exhibit, and feeling that whatever is done should be done right, we proceeded the best we knew how.

"Now, then, kindly grant me your attention while I read the second subject assigned me, viz.: 'Specialty Department Work'; I absolutely do not see any reason for assignment of floor space for this branch of the business; in fact, if the overhead expense is not kept down to a minimum, it will be impossible to show a profit on the sales.

"There are many articles that may be handled with varying degrees of success in different localities. I can only set forth my own experience in Cleveland. The coal chute, corner bead, picture molding, wall ties, joists hangers, wall safes and other articles such as these do not warrant the service of special salesmen. These commodities can be handled with best results through your general salesmen.

"I have found it expedient, however, to specialize in shingle stains, cement coatings, deadening quilts and asphalt shingles. My experience of eight years with the Cleveland Builders' Supply Company, which concern you will grant me is second to none in the country, proved convincingly that I was justified in assigning two men to this work; one to handle stains, quiltings, cement coating and the other to asphalt shingles.

"It is safe to figure on shingles a net profit of 50 cents per square. During the second year of my experience with this article, the company sold 6,000 squares, earning a net profit of $3,000.00. The other departments referred to, proved as profitable and, with the proper attention, which they are now receiving, will continue to show an increased revenue.

"The salesman for this class of work should be obliged to spend the greater part of their time outside of the office, lining up prospects and work in proper harmony with the office salesmen, whose duty it should be to land the order, in the event the prespective customer desires to transact his business at Headquarters.

"There is no doubt in my mind that a great many of you gentlemen present have had experience similar to my own. On the other hand, there must be some who do not favor the specialties I have mentioned. There is no set rule that can be applied to all localities. The only successful solution to our problem is to get together in small groups and exchange ideas. Each and every one of us then can select those good points brought out by the others, which might be applied to our local conditions."

William J. Lacey, of Chicago, gave an interesting talk on "Employees' Compensation and Employers' Liability," in which he brought out a number of interesting facts and figures, showing wherein the builders' supply dealers of the country benefit by laws which will protect the employee and employer,

FRANK ADAMS MITCHELL, CONVENTION BANQUET POET AND VICE-PRESIDENT AND GENERAL MANAGER CERESIT WATERPROOFING COMPANY.

giving to the first compensation due him for loss of time or limbs through accidents while at work and saving money to the employer that is now being spent through insurance companies.

A chart produced by Mr. Lacey showed that there are more accidents among teamsters than any one other class of workmen.

Acting President Warner spoke for the assembled dealers when he said:

"I am sure, gentlemen, that there are several things in that short address of Mr. Lacey's very interesting and I, for one, never realized before that teaming provided a bigger percentage of accidents to employers in the country. It shows there is something there that all of us are particularly interested in. I intend to go back and study the question a little more thoroughly and see what we can do to help the man that should be benefited."

The next paper was from a very popular and able member from Milwaukee, Charles Weiler, on the subject all are anxious to boost—"Prosperity."

Mr. Weiler's paper will be printed at a later date; space does not permit printing it here.

At the close of Mr. Weiler's remarks, the president said: "Gentlemen, I have two important matters to take up before closing the morning session. First, we have about one minute to hear from John Lind, secretary of the Chamber of Commerce of the United States of America."

Mr. Lind invited all the members to be the guests of the Chicago Chamber of Commerce for luncheon and hear some good Chamber of Commerce speakers of national reputation.

The morning's session then adjourned.

Wednesday Afternoon's Session.

The afternoon session was called to order at 2:30 p. m. by Acting President Charles Warner, who called on George A. Olsen, of the editorial staff of ROCK PRODUCTS, to read a paper on "Coal and Ice Departments in Connection with the Builders' Supply Business."

Mr. Olsen brought out the advantages and disadvantages of associating coal and ice with builders' supplies, subjects which dealers all over the country are especially interested in. For want of space we are omitting his paper. It will be printed in a later issue.

The chairman then called on A. W. Dowler, who spoke on the matter of the Interstate Commerce Commission hearing in regard to the railroads wanting to make charges for the spotting of cars.

Mr. Dowler said in part: "The question of industrial switching of cars was taken up by the commission with a view of finding out what allowances were being made to the larger industries; and they found a good many things which they thought should not occur. The eastern roads have made application to the commission for a 5 per cent increase in their freight rates. About two years ago the railroads tried to make an advance of 10 per cent and were turned down. At that time Louis D. Brandeis said that if the railroads would practice economy they could probably save a million dollars a day, but he has not yet told them how it could be done. The time for this advance to take effect has been postponed for another six months.

"Meantime the commission has gone into this proposition of industrial switching, and what they term special allowance to larger shippers, who have their own organization for protecting their interests against this proposed charge. The commission did not go into the details of this, one of which is that the courts have always held that when a carrier takes a car to your siding its duties under the law are finished. They are not obliged to spot the car under law. For free service of this kind the carriers contend that they should get a charge, and the roads are very anxious to get this charge if they can.

"This 5 per cent advance would net them $3,000,000 a day, but for the charge of spotting it would net them $14,000,000 a year. Brandeis has injected the spotting proposition into the case. The larger shipers and producers are pretty well organized and in a position to protect themselves, but the man who receives freight and who owns his own warehouse should be in a position to present in a proper way what the burden of the charge would be for spotting the cars. The man who receives freight and has a switch engine of his own can save this charge for spotting.

"My object is to let you know that during the next few months is the time that you must be heard from on the matter. The commission have almost made up their minds that this spotting must be paid for, and the men who are interested in this should let the commission know what a burden it will be to them. There is no reason or logic in the railroads insisting upon the builders' supply people paying for spotting. Freight rates were made with the understanding that the carriers would deliver you a car at your warehouse, and this switching is loading you down with something which should not be borne. It is a live question today, and something should be done to let the commission know that they are hitting the little fellow at the expense of the bigger firms."

In introducing Herbert N. Casson, acting president Warner said: "There is one gentleman whom our late president, Mr. Walton, spoke to me about last spring, with the idea of discussing the problem of organization to help develop our association into a bigger, better and more thorough body. I have taken this question up since Mr. Walton's death, and have arranged for this man to come here today. I believe that his address will be of great importance to our organization, and I hope it will be of great help to this body of men. I trust this organization will try and carry out the aims that we have had in our thoughts for many months. I will now call on Herbert N. Casson, of New York, for an address on "Sales Promotion and Organization Work."

Mr. Casson's Talk.

Mr. Casson spoke, in part, as follows: "I was given to understand that this convention was not going to be one of the ordinary sort; I was given to understand that you needed to start something or quit. They told me that here is a chance to get something going. Here you are confronting your trade for 1914 and we know there is a good year coming. We have never had enough in the past to brag of, and we are noticing these things now. The pessimists said the tariff bill was going to wreck us, and the currency bill was fought against until it was passed, but now these important measures behind us we find everybody only too eager to fall in with the same.

"Here you have an old trade—

"I was talking to the salesmen of the Burroughs Adding Machine Co., which is a brand new business. Those men are alert and making money. It is different with you. In every old business there is a danger. When we are thrown upon our own resources we learn our business; we pick it up. Here you are in an old trade in the midst of new things and what are you going to do? There are so many new things coming into vogue, and so many

new methods of doing business, that if you do not keep up with the times you will lose out.

"There are 8,000 dealers in the country in your line of business, and yet you have only a small number enrolled as members of this association, and you only ask $10 a year. You are not in the game at all. You are scarcely even looking on; and the problem is whether you are going to be in this game. They all talk about cutting out the middleman. There will always be the middleman. You have got to have him; the only question is whether it is going to be you who will get the profit or the manufacturer's agent. We are finding out a lot about this talk about selling direct. Cutting out the dealer and buying direct from the manufacturer is not a good thing.

"You have got to organize. Some men think they are in business; they are not, they are only in trouble. You are doing a lot of business, but making nothing out of it. The lightning bug has a headlight at the back but no mind; you have minds but no headlight at the back. You have got to get out and learn this new gospel of efficiency. If you turn your back on efficiency your competitor gets hold of it. There is a difference between net and nit; last year it was nit. All sorts of expenses are piling up and the money we get back does not. The new thing is not to go after gross business, but find out how to work up new trade and make money out of it. Many jobbers are keeping in business by simply handling one specialty. You should demand a profit on every deal. If you take any business that does not make a profit, you will be taking more next year on the same terms.

"Price-cutting is not business; business means making a profit. You have to reach out for a wider market. There is nothing so cheap as money, and nothing as dear as labor. I would suggest pinning medals on architects and dining contractors. The contractor costs more, because you have to feed him. The suggestions I have given you I have tried out within the last eleven years. You can get close to the architects by giving them some glory, but a contractor wants the money.

"It may be a good thing to get a salesman as a partner. Very few men who know how to sell can buy and vice versa. A buyer and a seller together can make four times as much as they can alone, because it takes that kind of a thing to make a good business. Conditions now are against you; the people you have to deal with on both sides are better organized than you are, and you are waging your fight with bow and arrow against modern artillery. How can you change conditions; how can you raise prices? How can you get together and lift your trade up? You can create demand, you can develop a sales policy; there is no reason why you should not have trained salesmen. Most of you have the old kind of salesmen, who when they feel well can go and sell goods; and when they don't feel well they won't go out.

"We all think we are born with the letter 'S' on our shoulders; we think we are born salesmen. We are finding out that you can train your salesmen and hold your salesmen down to it. We are getting away from that kind of thing of selling people what they want. The question is whether you are dealers or janitors of a pile of truck. You can handle men as you can handle cement and other products. Men are all of the same breed, salesmen know that. I know men are alike, there is no difference in men. There are just two handles to all men—pride and profit.

"We are finding out there is an art in salesmanship.
The way to sell goods used to be to talk a man to death—that was the wrong way. We listen today. A man is like a barrel; you have got to empty him before filling him. When you want to handle a man the first thing to do is to get him good-humored. Get him to talking about himself—listen a man into the thing. The way to talk to a man—the way to sell goods, is to get the man so interested that he will not know whether you are talking or he is thinking. No man deals with a stranger; friendship rules this world—not money. You have to be interested in his business; get around on the same side of the table as the man you are talking to. We are finding out that there is an art in handling men as well as in salesmanship.

"There is no reason why you can not use advertising in your business—it is the biggest power there is."

Mr. Casson cited a case of the method used to advertise and sell lawn mowers, and said there is no reason why you cannot in your business use this method of advertising—it is the biggest power there is. "Some of you men who think you can't sell lime or cement by advertising, advertise for a cat under your own name and see how many cats you will receive. That is the power of advertising—most marvelous power. There is nothing you cannot do by advertising—there is nothing you cannot make interesting by it. You get an idea that advertising is an expense, but it is not; advertising brings in; it does not take out. Advertising does not spend; it saves. An advertising man is a saver built like a spender, but an advertising man is not a spender.

"Unless you fight for a price the public will never give you one. The public never appreciates anything you give it; it does not care for price, the public gives you whatever price you make it give you. Nobody cares about price; all sorts of prices are paid for various commodities. It is not the thing you can do, it is the story of it. There is no limit to price. You are heading in the wrong way by price-cutting. Make up your minds that you are going to get a reasonable price, and you can get it. Put your stuff up and see that you get the price. Get a jingle on your name, by adopting some sort of a slogan for your goods. Why should not your business be interesting? Why cannot you make it interesting?

"There is no reason whatever why you cannot do these things; you can entirely change your methods if you so decree. I will give you this motto: 'The Future Has No Paths.' There is no reason why you should not be making money; if you only have the nerve enough to demand a reasonable price for your product; you have the goods, but you have never had the nerve. Put out a dollar and you will bring in ten. You are in a fight to protect your own business in your own city. You have got to know where the demand is and bring the business to you instead of waiting until it comes to you. Hang on to the association and the city that belongs to you. There is no such word as impossible.

"They are working wonders in nearly every other line of business; why should you be a tail-end trade? Why should you not run your business profitably the same way as Burroughs and others. Here is another good motto for you to keep in mind, 'Bite off more than you can chew; and chew it.' Cannot you fellows help boost the association by getting others to join? You have got a live man as president. Now do your part."

At the request of the Chair, Mr. Cormack addressed the members for a few moments as follows: "Since this morning when you wished the presidency upon me I have thought considerable about it and deliberated, and after talking the matter over with a few of my friends I have decided to accept the honor. It is possible that I may be biting off more than I can chew, but I am going to try and chew it. I have accepted this position as president of this association with the firm and distinct understanding in my own mind that when we meet again next year in national convention, the association will be fit for burial or it will be a live one. We will not go along in the slumbering state that we have been going along for the past few years. I say this with all due respect to those who have worked hard for the organization. Let us make this a real live dealers' association, not of cement or lime or hard wall plaster men, but a building supply man's association composed of those who handle everything that goes into the building, with the exception of the people affiliated with the lumber industry.

"This is not going to be an easy task on the part of the officers and executive board of the national association, but we want the aid of every member in the organization. It is rather premature at this time to say what we are planning, but one thing I wish to impress on all those who are members of this association, and that is that they must work. It will not be entirely satisfactory to me to send in their $10, but they must also get out and work for themselves. I am not entering into this position under any delusions. I realize just exactly how it is. The thing has been wished on me, but I do wish on you when the next election comes up that the presidency of the association will be worth striving for, and that there will be a keen race among the members to get it.

Mr. Warner then called on Edward M. Hagar, president of the Universal Portland Cement Co., to give an address on "Dealers' Profits." His address will appear at a later date for lack of space in this issue.

Lewis R. Ferguson, engineer for the Association of American Portland Cement Manufacturers, followed Mr. Hagar with an address on "Concrete Roads as a Help to Dealers."

The meeting then adjourned.

The Banquet.

What will go down in the annals of the history of the National Builders' Supply Association as the grandest and most wonderful banquet and evening of entertainment ever enjoyed by the members of that association was the treat prepared for the visiting members by the Chicago Committee, under the leadership of Edward K. Cormack, new president of the association.

The menu consisted of dishes the preparation of which represented the highest degree of culinary art.

An elaborate program of entertainment was presented consisting of vaudeville sketches, cabaret stunts and songs by members of the Glee Club of the Chicago Association of Commerce.

Frank Adams Mitchell, that marvelous designer of entertainment and composer of poetry, who manages the business of the Ceresit Waterproofing Co., had prepared a "Souvenir Book of Songs," in which he portrayed the qualities of about 30 of the leading supply men of the country. The words were sung to popular tunes by the entire audience, everyone present entering into the spirit of the evening.

Tango and Texas Tommy dancers were so clever and accurate in their movements that they were forced to repeat their graceful and interesting steps several times.

Sketches on "Passing the Buck," "Double-Faced Manufacturers," and a boxing match between honest and dishonest dealers were features which brought out in a humorous manner the condition of the building material industry as it exists today.

In appreciation of the wonderful talk on "Sales Promotion and Organization Work," given by Herbert N. Casson at the afternoon session, he was called on for a few remarks. His Irish wit kept the banqueters in convulsions. He also drove home a few salient points relative to association work. Before he sat down several thousand dollars had been voluntarily subscribed for the purpose of putting the association on a substantial working basis, the contributions coming in $100 pledges.

An impressive feature of the program was the portrayal of the chair of Fame—a tribute to the memory of the late President Walton. At a signal there was a fanfare of trumpets and the curtains back of the improvised stage were slowly drawn apart. There was then presented, standing on a chair in the center of the stage, a life-sized portrait of Mr. Walton. The portrait was draped in black and at the foot of the chair, lying on the floor, was a broken column. At this moment a bell very distinctly tolled twelve times. As a token of respect and as a silent toast to the beloved and departed president every man in the audience arose during the tolling of the bell.

The Convention Registrations.

C. F. Dynes, Wisconsin Line & Cement Co., Chicago.
Chicago.
August Radtke, the Radtke Co., Monroe, Mich.
M. R. Squire, Allwood Line Co., Chicago.
R. M. Beckley, U. S. Gypsum Co., Chicago.
E. G. Westerberg, Chicago Fire Brick Co., Chicago.
John A. Connelly, Thos. Connelly Co., Chicago.
W. H. Bassler, Masons' Specialty Co., Chicago.
E. C. Owens, Chicago Fire Brick Co., Chicago.
E. Newland, C. H. Defrees, South Bend, Ind.
E. B. Warberg, Chicago Fire Brick Co., Chicago.
A. V. Foster, United States Silica Co., Chicago.
Fred A. Schmager, Atlas P. C. Co., Chicago.
R. G. Bear, U. S. Gypsum Co., Chicago.
Gold Williams, Marquette Portland Cement Co., Chicago.
D. H. MacFarland, Atlas Portland Cement Co., Chicago.
Harold M. Scott, Western Sales Manager, Lehigh Portland Cement Co., Chicago.
Geo. G. Armstrong, Armstrong Mfg. Co., Waterloo, Ia.
D. H. Nichols, Building Materials, Chicago.
A. H. Lauman, Jr., National Mortar Supply Co., Pittsburg, Pa.
Norman Hough, Kelly Island Lime and Trans. Co., Cleveland.
A. W. Ellsworth.
Chas. Burrows, Cleveland, O.
Astrid Rosing, Chicago.
D. G. Donahue, Fireproof Materials Co., Pittsburg, Pa.
Robt. H. Schwandt, Ceresit Waterproofing Co., Chicago.
Geo. F. Dean, Chicago.
John J. Voelkel, J. J. Clark Co., New Orleans, La.
Herman Prange, Tews Lime and Cement Co., Milwaukee, Wis.
Frank Pipkorn, Jr., Tews Lime and Cement Co., Milwaukee, Wis.
Alfred T. Druecker, J. Druecker Sons Co., Milwaukee, Wis.
B. E. Kaestner, Waukesha Lime & Stone Co., Milwaukee, Wis.
John P. Druecker, J. Druecker Sons Co., Milwaukee, Wis.
H. H. Button, Jr., Taylor Button Co., Milwaukee, Wis.
W. T. Taylor, Taylor Button Co., Milwaukee, Wis.
Aug. C. Tews, Tews Lime & Cement Co., Milwaukee, Wis.
N. G. D. Haas, Marquette, Mich.
E. W. Bond, Bond & Sarnow Co., Milwaukee, Wis.
A. G. Ward, the Yow Ice Co., Youngstown, O.

C. L. Johnson, Atlas Portland Cement Co., New York City.
A. C. Armstrong, the Thompson Armstrong Co., Cincinnati, O.
Wm. C. Crolins, Wm. C. Crolins Co., Chicago.
Fred K. Irvine, Building Materials, Chicago.
F. R. Minton, Mexico Brick & Fire Clay Co., Mexico, Mo.
A. E. Cruce, Corn Products Refining Co., Chicago.
W. H. Murray, Crescent Portland Cement Co., Wampum, Pa.
R. Walter Marshall, Wheeling Wall Plaster Co., Wheeling, W. Va.
W. T. Duggan, Sandusky Portland Cement Co., Cleveland, O.
Harold W. Becker, Wheeling Wall Plaster Co., Wheeling, W. Va.
W. K. Evans, Sandusky Portland Cement Co., Sandusky, O.
H. D. Mercer, Atlas Portland Cement Co., Chicago.
George S. Knapp, Knapp Bros. Mfg. Co., Chicago.
Benj. K. Nusbaum, Concrete Waterproof Paint Co., Philadelphia, Pa.
C. D. Clugston, Universal Portland Cement Co., Chicago.
Charles Engelhardt, Chicago.
Joseph Mitchell, McLaughlin Building Material Co., Chicago.
A. H. Lauman, National Mortar & Supply Co., Pittsburg, Pa.
Frank Steeg, U. S. Supply Co., Kansas City, Mo.
W. W. Nicol, Peoria Fuel Co., Peoria, Ill.
H. D. Jenkins, Sandusky Portland Cement Co.
N. W. Barkley, Atlas Portland Cement Co., Chicago.
Robt. F. Hall, Universal Portland Cement Co., Chicago.
O. A. Heppes, the Heppes Co., Chicago.
F. O. McCaffrey, McCaffrey Bros. Co., Omaha, Neb.
N. A. Aimer, the Heppes Co., Chicago.
H. A. Rogers, the A. B. Keeport Co., Indianapolis, Ind.
A. Leffler, Wisconsin Lime & Cement Co., Chicago.
N. H. Parsons, Parsons Lumber Co., Rockford, Ill.
E. M. Sunderland, Sunderland Bros. Co., Omaha, Neb.
E. F. Smyth, Sunderland Bros. Co., Omaha, Neb.
B. L. Swett, Lehigh Portland Cement Co., Allentown, Pa.
E. H. Michael, Salmen Brick & Lumber Co., New Orleans, La.
Frank A. Mitchell, Ceresit Waterproofing Co., Chicago.
Geo. S. Hird, Mitchell Lime Co., Chicago.
James Quinn, Jr., Kelly Plaster Co., Sandusky, O.
W. D. K. Rayburn, Marquette Cement Mfg. Co., Chicago.
O. D. Bullendeck, H. C. Bullendeck & Son, Richmond, Ind.
Ed. N. Wilson, Mather Bros. Co., Richmond, Ind.
Walter F. Jahncke, F. Jahncke, Inc., New Orleans.
Wm. H. Pipkorn, W. H. Pipkorn Co., Milwaukee, Wis.
Jas. H. McCrady, Jr., McCrady Bros. Co., Braddock, Pa.
Wm. F. McCrady, McCrady Bros. Co., Braddock, Pa.
John F. Baldwin, McCrady Bros. Co., Braddock, Pa.
E. C. Little, Laclede-Christy, St. Louis.
Lawrence Hitchcock, The Kelley Island Lime and Transport Co., Cleveland, O.
Frank J. Silha, McLaughlin Building Material Co., Chicago.
Hector M. Gordon, Gordon Hittl Co., Boston.
S. Topping, Gordon Hittl Co., Boston.
J. Spied, Usona Mfg. Co., Aurora, Ill.
J. C. Adams, United Fuel and Supply Co., Detroit, Mich.
W. L. Krider, U. S. Gypsum Co., Chicago.
W. W. Fischer, Fischer Lime and Cement Co., Memphis.
J. H. Nald, U. S. Gypsum Co., Chicago.
B. L. Roetter, U. S. Gypsum Co., Chicago.
L. B. Jackson, Atlas Portland Cement Co., Chicago.
Nicholas J. Engel, Michigan Gypsum Co., Detroit, Mich.
Warren G. Bartlett, Northwestern Expanded Metal Co., Chicago.
Ambrose Tomkins, Tomkins Brothers, Newark, N. J.
A. B. Meyer, A. B. Meyer & Co., Indianapolis.
Claude W. Filer, National Plaster Board Co., Cleveland, O.
Wm. A. Rabe, Kenton Supply Co., Covington, Kentucky.
George A. Olsen, Building Materials, Chicago.
Theo. C. Schwier, Ed. W. Baltes & Co., Fort Wayne, Ind.
R. C. Jarvis, Jarvis Co., Port Huron, Mich.
C. L. Brainerd, Universal Portland Cement Co., Chicago.
J. N. Dutton, Burlington, Iowa.
R. D. Hatton, Laclede-Christy, St. Louis.
H. B. Seeley, Chicago.
A. B. Waugh, U. S. Gypsum Co., Chicago.
A. W. Eisenmayer, Granite City Lime and Cement Co., Granite City, Ill.
H. C. Hutchinson, Hercules Waterproofing Co., Buffalo.
W. E. Viets, Lehigh Portland Cement Co., Chicago.
C. L. Graves, Robinson Graves Sewer Pipe Co., Uhrichsville, O.
Ed. H. Burns, Burns & Hancock Firebrick Co., Chicago.
T. S. Pabst, U. P. C. Co., Chicago.
Walter Smith, Atlas Portland Cement Co., Fort Dodge, Ia.
Chas. J. E. Anderson, Indiana Sand and Gravel Co., Chicago.
W. L. Woods, Standon Material Co., Chicago.
J. F. McFarlin, Yo. Ice Co., Youngstown, O.
Harry C. Podolsky, Bonner & Marshall, Chicago.
Charles Schmitz, Crescent Portland Cement Co., Wampum, Pa.
Frank S. Howard, Usona Mfg. Co., Aurora, Ill.
Mazie La Clair, Building Materials, Chicago.
J. M. Hammond, Flint Coal Co., Flint, Mich.
Howard B. Arnold, Dayton Builders' Supply Co., Dayton, Ohio.
Fred A. Tobitt, American Rolling Mill Co., Middletown, Ohio.
James M. Trigg, Majestic Furnace & Foundry Co., Huntington, Ind.
Fred Goepper, Indianapolis, Ind.
Louis J. Moss, Tri-State Builders' Supply Co., Memphis, Tenn.
E. A. Foster, Samuel Cabot, Inc.
J. W. Stromberg, Clinton Wire Cloth Co., Chicago.
George A. Fargher, National Builder, Chicago.
C. C. Quincy, Chicago.
W. M. Rynerson, Builders' Material Supply Co., Kansas City, Mo.
W. E. Cobean, Wolverine Portland Cement Co., Coldwater, Mich.
S. A. Frank, Chicago.
E. H. Defebaugh, Building Materials, Chicago.
Charles F. Hatfield, Panama-Pacific Exposition, Chicago.
C. F. Towne, Niagara Gypsum Co., Buffalo, N. Y.
C. H. Jaite, The Jaite Co., Boston, Summit Co., Ohio.
John C. Lorimer, Universal Portland Cement Co., Chicago.
W. A. McCall, Building Materials, Chicago.
F. L. Jaeger, Universal Portland Cement Co., Chicago.
John R. Collette, Kewanee Manufacturing Co., Kewanee, Ill.
H. D. Samuel, Master Builders' Co., Chicago.
John M. Campbell, Kreischer Brick Manufacturing Co., New York City.
James N. Thayer, O. C. Thayer & Son, Erie, Pa.
T. W. Murray, Trussed Concrete Steel Co., Detroit, Mich.
C. B. Rogers, Lehigh Portland Cement Co., Cincinnati, Ohio.
Paul A. Jandernal, Lehigh Portland Cement Co., Cleveland, Ohio.
E. J. Holwax, The Youngstown Ice Co., Youngstown, Ohio.
W. S. Thomas, Knapp Bros. Manufacturing Co., Chicago.
Horace C. Indvir, Springfield, Ill.
Charles Wilson, The Master Builders' Co., Cleveland, Ohio.
F. H. Kinney, Hyde Park Supply Co., Cincinnati, Ohio.
Edw. K. Carmack, Wisconsin Lime & Cement Co., Chicago.
Richard B. Tucker, Norfolk Building Supplies Corporation, Norfolk, Va.
Charles H. Claiborne, Union Mining Co., Baltimore, Md.
M. A. Reeb, Buffalo, N. Y.
George H. Gengragel, Schaeffer & Gengragel, Dayton, Ohio.
N. L. Hutson, H. M. Reynolds Asphalt Shingle Co., Grand Rapids, Mich.
H. G. Reynolds, H. M. Reynolds Asphalt Shingle Co., Grand Rapids, Mich.
William Urschel, The Woodville Lime & Cement Co., Toledo, Ohio.
T. J. Boecklen, Jamestown Paint & Varnish Co., Jamestown, Pa.
W. M. Spires, The Heppes Co., Chicago.
Charles Weiler, Western Lime & Cement Co., Milwaukee, Wis.
Charles M. Kelly, James C. Goff Co., Providence, R. I.
C. M. Timmons, Kosmos Portland Cement Co., Louisville, Ky.
S. C. Kelly, Kelly Plaster Co., Sandusky, Ohio.
C. C. Stewart, Sykes Metal Lath & Roofing Co., Niles, Ohio.
I. A. Thomas, Sykes Metal Lath & Roofing Co., Niles, Ohio.
H. D. Collins, United States Gypsum Co., Chicago.
A. Y. Gowen, Cleveland Builders' Supply Co., Cleveland, Ohio.
Charles Warner, Wilmington, Del.
A. E. Bradshaw, Indianapolis Mortar & Fuel Co., Indianapolis, Ind.
C. G. Spencer, National Lime & Stone Co., Carey, Ohio.
G. W. Behrndt, Indianapolis Coal Co., Indianapolis, Ind.
Herbert F. Geist, Geist Cement Products Co., Cleveland, O.
C. B. Samuel, The Lookout Paint Mfg. Co., Chattanooga, Tenn.
I. C. Geist, Geist Cement Products Co., Cleveland, Ohio.
H. I. Glazier, Gen. Fireproofing Co., Chicago.
B. W. McCausland, Jr., U. S. Gypsum Co., Cleveland, Ohio.
J. E. Payne, General Fireproofing Co., Youngstown, Ohio.
W. T. Rossiter, Cleveland Builders' Supply Co., Cleveland, Ohio.
E. H. Moellering, Wm. Moellering Sons, Fort Wayne, Ind.
Buching, Hagerman & Co., Fort Wayne, Ind.
P. R. Clark, The General Fireproofing Co., Youngstown, Ohio.
F. M. Johnson, Penn. Metal Co., Boston, Mass.
D. C. Mannan, Mannan, Smith Co., St. Joseph, Mo.
O. J. Hartmeyn, Zanesville Bldrs.' Supply Co., Zanesville, Ohio.
W. A. Humphreys, Robinson Clay Products Co., Akron, Ohio.
H. F. Crouse, Robinson Clay Products Co., Akron, Ohio.
J. Hallen, Nebraska Material Co., Lincoln, Neb.
German P. Buhrele, Youngstown, O.
R. B. Mather, Mather Bros. Co., Richmond, Ind.
J. T. Healy, Jr., The Atlas Portland Cement Co., Chicago.
W. A. Sells, Northwestern Expanded Metal Co., Chicago.
C. W. S. Cobb, Glencoe Lime and Cement Co., St. Louis, Mo.
S. B. Goucher, National Fireproofing Co., Pittsburgh, Pa.
J. O. Freeman, Northwestern Clay Co., New Windsor, Ill.
A. H. Gallagher, National Retarder Co., Toledo, Ohio.
L. R. Walker, General Roofing Mfg. Co.
L. W. Macatee, W. L. Macatee & Sons, Houston, Texas.
W. G. Hurlburt, Bostwick Steel Lath Co., Niles, Ohio.
John G. Evans, Lehigh Portland Cement Co., Chicago.
T. W. Spinks, M. M. Allen Supply Co., Newport, Kentucky.
P. Austin Tomes, J. A. Richards & Shaff, New York City.
C. N. Ray, United Fuel and Supply Co., Detroit, Mich.
W. T. Akers, Akron Vitrified Clay Mfg. Co., Akron, O.
J. A. Halber, J. A. Halber Cor. Co., Akron, O.
B. H. Rader, Universal Portland Cement Co., Pittsburgh.
W. E. Wright, The W. E. Wright Co., Akron, O.
A. E. Livingston, Louisville Bldrs. Supply Co., Louisville, Ky.
Joseph Hock, Wisconsin Lime and Cement Co., Chicago.
Wm. Nast, Nast Bros. Lime & Stone Co., Marblehead, Wis.
E. J. Moors, Texas Portland Cement Co., Dallas, Texas.
J. W. Eveas, Granite City Lime & Cement Co., Granite City, Ill.
Louis Buenger, Granite City Lime & Cement Co., Granite City, Ill.
A. W. Eisemayer, Jr., Granite City Lime & Cement Co., Granite City, Ill.
Everett C. Swiney, Knapp Bros. Mfg. Co., Chicago.
W. W. Coney, The Moores-Coney Co., Cincinnati, O.
S. H. Beard, U. S. Gypsum Co., Detroit, Mich.
J. H. Cranbrook, Atlas Portland Cement Co., Chicago.
William H. Horton, Wm. E. Die Co., Chicago.
S. N. Fulton, U. S. Gypsum Co., Chicago.
W. J. Austin, The Aetna Powder Co., Chicago.
Albert E. Robinson, Universal Portland Cement Co., Chicago.

W. S. Packer, National Builder, Chicago.
H. W. Snell, Universal Portland Cement Co., Chicago.
John W. Echelberger, T. D. Echelberger's Sons, Dayton, Ohio.
J. A. Daley, Young Bros. & Daley, Lansing, Mich.
F. L. Higgins, Whitacre Fireproofing Co., Chicago.
E. C. Burton, Link Belt Co., Chicago.
E. Frank O'Donnell, Sanitary Building Material Co., Chicago.
E. H. Norblom, Landers, Morrison, Christenson Co., Minneapolis.
A. M. Christenson, Landers, Morrison, Christenson Co., Minneapolis.
W. H. McCarthy, Chicago.
A. A. Stade, Chicago Portland Cement Co., Chicago.
C. B. Haynes, W. H. McCarthy, Chicago.
I. N. De Lamatar, Jackson, Mich.
O. H. D. Rohwer, Lehigh Portland Cement Co., Chicago.
J. W. Boardman, Jr., Peninsular Portland Cement Co., Jackson, Mich.
H. M. Clemens, Cannelton Sewer Pipe Co., Cannelton, Ind.
S. S. Jenkins, U. S. Gypsum Co., Chicago.
Carl C. Walters, Hocking Valley Products Co., Columbus, Ohio.
George R. Wales, Clinton Metallic Paint Co., Clinton, N. Y.
F. R. Dickinson, Builders' and Pavers' Supply Co., Detroit, Mich.
Allen Brett, Concrete & Cement Age, Detroit.
F. E. Hall, D. J. Hall & Co., Cincinnati.
S. M. Hamilton, Buffalo Builders' Supply Co., Buffalo, N. Y.
Burton J. Mitchell, Wm. S. Humbert, Inc., Niagara Falls, N. Y.
Albert Cone, American Lumberman, Chicago.
R. H. Asted, Grand Rapids Plaster Co., Grand Rapids, Mich.
S. H. Barrows, National Kellastone Co., Chicago.
Theo. A. Randall, The Clay Worker, Indianapolis.
O. C. Hubbard, Universal Portland Cement Co., Chicago.
C. H. Hoppe, Thomas Connelly Co., Chicago.
A. B. Meyer, A. & C. Stone & Lime Co., Indianapolis.
E. W. Watson, Universal Portland Cement Co., Chicago.
Geo. Lee Southard, U. S. Gypsum Co.
H. M. Blackburn, Universal Portland Cement Co., Chicago.
B. A. Thrift, Chicago.
B. F. Affleck, Universal Portland Cement Co., Chicago.
T. P. Black, Marblehead Lime Co., Chicago.
Fred M. Adams, Elgin, Ill.
C. R. Sundstrom, Universal Portland Cement Co., Chicago.
Blaine S. Smith, Universal Portland Cement Co., Chicago.
F. C. Printy, Sandusky Portland Cement Co., Sandusky, Ohio.
A. M. Steelhammer, Chicago Sewer Pipe Co., Chicago.
E. A. Mallan, Chicago Portland Cement Co., Chicago.
E. P. Bostler, Rockwell Lime Co., Chicago.
Thomas Bisch, Rockwell Lime Co., Chicago.
W. H. Kremer, Oak Park, Ill.
H. S. Doyl, American Steel & Wire Co., Chicago.
Frederick Blanchard, Universal Portland Cement Co., Chicago.
Edward Quebbeman, Universal Portland Cement Co., St. Louis.
Morris Metcalf, Universal Portland Cement Co., Chicago.
Percy H. Wilson, American Portland Cement Co., Philadelphia.
S. H. O'Neil, Universal Portland Cement Co., Chicago.
Jas. D. Marnane, Cragin Pipe & Block Co., Chicago.

Scheduled Shows and Meetings.

February 26 and 27—New England Builders' Supply Association, Worcester, Mass., Bancroft Hotel.

March 2-7—National Brick Manufacturers' Association, New Orleans, La. Twenty-eighth annual convention.

March 5—Northwestern Iowa Retail Lumbermen's Association, Martin Hotel, Sioux City, Iowa. Annual meeting.

March 12—Mason Material Dealers' Association of New Jersey. Annual meeting.

March 18, 19—New York State Builders' Supply Association, Hotel Seneca, Rochester, N. Y. Second annual meeting.

April 30 to May 9—Forest Products Exposition, Coliseum, Chicago, Ill.

May 21-30—Forest Products Exposition, Grand Central Palace, New York, N. Y.

TWENTY-FOURTH ILLINOIS MEETING

Annual Convention of Illinois Lumber and Builders' Supply Dealers' Association Held Feb. 10-12—Sessions Well Attended.

The twenty-fourth annual convention of the Illinois Lumber and Builders' Supply Dealers' Association was held at the Hotel La Salle, Chicago, Feb. 10, 11 and 12.

The opening session was held Feb. 10 at 2 o'clock, with President Charles W. Hall in the chair.

In addition to the interesting reports and business addresses, there were a few vocal solos and duets rendered at such frequent intervals as to make the meeting most enjoyable as well as instructive.

Everett Hinchliff, of Galesburg, opened the session on Tuesday afternoon with a tenor solo. President Charles W. Hall, of Sandoval, then gave the president's annual address. J. W. Paddock, of Pana, submitted the treasurer's report and N. E. Holden, of Danville, read the advertising director's report. After the reading of Secretary George W. Jones' report, Mrs. Nell Townsend-Hinchliff, of Galesburg, favored the assembled throng with a soprano solo.

Harry I. Fogleman, efficiency expert of Chicago, gave a stirring address on "Business Efficiency." His masterful way of using the English language and the forceful manner in which he drove home his arguments held the undivided attention of every listener. Mr. Fogleman dwelt particularly on the topic of "salesmanship," much to the satisfaction of the dealers present. One short sentence which he left with his listeners as a reminder of his talk is: "Get to the point of contact."

"Selling," said Mr. Fogleman, "is the power to get men to think as you think. Get your man into harmony with sound judgment. A salesman must have personality. Personality is confidence. Confidence is the basis of all human relationship."

Speaking of success, he said: "What is success? Success consists of four things, health, money, honor and power of adaptability. With these what more could man ask?"

A duet by Mr. and Mrs. Hinchliff preceded the appointment of committees on resolutions, nominations, legislation and auditing.

Following these appointments, Secretary Emeritus G. W. Hotchkiss received an ovation, similar to which few men receive in the business world. He spoke to them on the topic, "Incidents in a Long Career," taking them back to the time when there were 140 residents in Chicago, 100 Indians and 40 white men. "Then and ever since," said Mr. Hotchkiss, "some eastern men have always thought and think today there is none but Indians west of the Allegheny Mountains." The smile which drifted from face to face was evidence that the significance of the statement was apprehended.

Mr. Hotchkiss emphasized the fact that he believes in changing methods whenever they are found to be inadequate. What dealers are after is more business each year than they had the year before. "If your method won't get it," said Mr. Hotchkiss, "change your method. Molasses will catch more flies than vinegar."

He brought out quite distinctly the benefits of being a member of the Illinois Association, elaborating on the features of fire and casualty insurance and the legal department.

Straightening up and pushing out his chest, Mr. Hotchkiss boasted that through the courtesy of the Illinois Lumber and Builders' Supply Dealers' Association he was in a class by himself, being the only commercial secretary emeritus in the world.

Wednesday's Session.

After a slight delay, caused by the necessary rearrangement of the convention hall, the convention assembled in its second session at 3 o'clock on Wednesday afternoon. There were present at this session more than 300 members and guests of the association, including about twenty-five ladies.

The meeting was called to order by President Hall, who briefly announced changes made necessary in the program.

Secretary George W. Jones then read various announcements concerning the afternoon's program and stated in detail the reason for the absence of L. C. Boyle, who was slated to address the association on the subject of "The Business Outlook." Secretary Jones informed the members present that Mr. Boyle is at present in New Orleans for a conference with lumber manufacturers on matters of interest to both wholesalers and retailers of building materials, which embodies pending legislation. Mr. Boyle went to New Orleans from Washington, where he attended the opening session of the Chamber of Commerce of the United States as a representative of the Illinois Lumber & Builders' Supply Dealers' Association.

The absence of Mary Wade, of St. Louis, on the program for a soprano solo, was caused by her illness, of which she had advised Secretary Jones by night-letter telegram. This part of the program was then agreeably carried out by Fred J. Cassidy, of the Chicago "AA" Portland Cement Co., who entertained the delegates with baritone solos.

The moving picture exhibit of the yellow pine lumber operations of the Long-Bell Lumber Co., Kansas City, Mo., was the next feature of the program, and one that was highly appreciated. Every operation from the production to the finished product as it is given to the consumer by the retailer was shown in the pictures. There were many points here of exceptional interest, inasmuch as many of the retailers of lumber in the state of Illinois have never seen the actual production of the product.

President Hall then introduced Elmer H. Adams, who addressed the delegates on the subject of "The Income Tax." Mr. Adams gave a forceful review of every element of the much complicated income tax law and pointed out both its advantages and disadvantages. Immediately following his address there was a brief discussion, participated in by different members, on some of the more intricate problems involved by the income tax law. At the conclusion Mr. Adams was heartily applauded for the readiness with which he answered all questions.

Louis J. Ott, of Jefferson City, Mo., briefly addressed the meeting as a representative of the Southwestern Lumbermen's Association. Mr. Ott eulogized several of the deceased members of the lumber fraternity, including "Grandpa" Hodges and Met L. Saley, and pleaded that the Illinois association participate in the providing of suitable memorials to the memory of these faithful members of the lumbermen's craft.

Elmer E. Hole, of the American Lumberman, then addressed the delegates on the subject of creating an interest on the co-operative principle between fathers of the lumber and building supply trade and their sons in the business. Mr. Hole told of a movement on foot for the carrying out of plans along this line, and as a result of his address it was found that there were present at this convention about 30 sons of members of the association, and it was also brought to the attention of the members present that the Chicago Association of Commerce had made plans for entertaining these young men on Thursday afternoon.

"The Good of the Order" was transferred from the program of Thursday afternoon for this session and W. E. Lyon, of Carthage, Ill., led the discussions coming suitably under this topic. Perhaps the most interesting discussion of the afternoon was that pertaining to the handling of cement by the dealers and problems involved by present conditions. Following this discussion a committee was named and instructed to provide a plan for the betterment of cement selling by dealers in other lines of building supplies.

E. S. Cheaney, of Petersburg, Ill., who is in charge of the "Buyers' Guide" department of the association, told the members of the progress made with that feature of the organization.

J. W. Paddock, the association's treasurer, then told of the finances of the organization and made a plea to the members present that they live up to the spirit of the organization by the payment of their dues at such times as called upon so as not to curtail the work of the secretary. Mr. Paddock told some interesting stories and stated facts that were of especial interest and of a purpose making for the business welfare of the association.

The convention then adjourned until 2 p. m. Thursday.

The Exhibits.

The seventeenth floor of Hotel La Salle presented to the Illinois Lumber and Builders' Supply Dealers' Association members, facilities for becoming better acquainted with many products related to their business welfare. This feature of the convention of the association is now past an experimental stage and has become a successful resource to the "business of the dealers" in connection with their annual meetings.

Without a single exhibitor being asked, and in no manner solicited, forty-five rooms of this seventeenth floor of the hotel were taken over for exhibition purposes. In this connection we might

say that two very interesting facts are brought out. First, that the wholesaler and manufacturer considers the convention of the retailer of lumber and building supplies a very important affair. Second, that it assures to all members of the association, and all others directly interested, that the convention is a preconcluded success. It may also be noted here that at times in the past it was considered that an exhibition of this kind could not be maintained without interfering with the regular routine of convention work, but the contrary has now been proven. The manufacturer and his product thus becomes a part of the convention, and direct interest is brought more forcibly to the attention of every member who takes advantage of all elements of co-operation afforded by his association.

"The best informed lumber and building supply dealer can learn something to his advantage by a tour of these exhibits," said one of the leading lights of the Illinois association to a representative of Daily ROCK PRODUCTS. He also said that he can readily see that the members were not slighting meetings of the association because of the exhibits

Closing Session.

The closing session of the convention on Thursday was fully as interesting as the two previous sessions. The attendance was remarkable considering the fact that the exhibits on the seventeenth floor of the hotel were interesting enough to attract the attenion of such dealers as are in he market for materials which they have not handled heretofore and which were on display in the exhibition rooms.

E. E. Tomlinson, traffic manager of the association, spoke very interestingly relative to shipments of materials and complaints regarding these shipments. It is a well-known fact that among the lumber and builders' supply dealers materials are not received as regularly as dealers hope they might be. Sometimes this irregularity in the delivery of materials spells a loss of not only money but a great deal of time for the dealer and those dependent upon him for materials. In filing complaints it is well to have as complete information as possible relative to the shipment on which complaint is being made. In order to have this information accurately the dealers should insist upon receiving from the carrier of their materials the date of shipment, point shipped from, the road, car, initial and number.

Every dealer recognizes the inefficiency of the railway company and raises a complaint with the local agent as soon as he can present evidence that satisfactory service is not being given. This is perfectly proper, but the dealer should not stop here and become satisfied as soon as the shipment is received. If, instead of being contented upon receipt of the materials, he would take the question of service up with those higher in authority than the local agent, his complaints in the future might be greatly lessened. The average dealer does not complain after the car is received and consequently the brunt of the burden which is borne by the local agent does not reach the general agent, who is really the one who should receive complaints. It is impossible for a building material dealer to sit at his office and receive satisfactory service. This end of the business should not be neglected any more than the selling feature. It should be the aim and purpose of every progressive dealer to sell service as well as materials. "Service and quality" is an ideal slogan for anyone in this line of business to adopt and service can only be given if it is received. The average dealer will do his utmost to get an order and relying upon the manufacturer and railroad companies to ship the goods in accordance with their promises, he assures his customers when they want the material it will be at their disposal. Despite the experiences he may have had in times past, he thoroughly believes that the railway companies will give him ideal service and makes his promises accordingly.

After questions relative to the traffic in lumber and building materials had been thoroughly discussed by members present, Mr. Lyons favored the assembled throng with a solo, "A Perfect Day."

The legal department of the association, through J. B. Wescott, took up the subject of the mechanics' lien laws and attention was called to the improvements in these laws made during the past year. It is believed that the ter than similar laws of other states. The discussion brought out the question of "original contractor" or "sub-contractor." The dealers were thus advised that an original contractor is one who sells direct to the owner. This condition prevails more in the smaller towns than in the big cities. In Chicago and a few of the other large cities of Illinois, practically all materials are sold through the contractor. In such instances as these the material man becomes a sub-contractor. Much discussion took place on the time limit of filing liens. A point that was made clear to the dealers present and one which has been perplexing many of them in the past was the date from which the time limit began. It was brought out quite clearly that in all cases the date from which a time limit begins in connection with the lien laws is the same as the date of the last delivery of materials. A point that was most interesting to the dealers and one on which a few mistakes have no doubt been made was the time limit of 60 days. Many of the dealers have naturally supposed that 60 days meant two months. Here is where they have been in error, for in some instances a limit of 62 days has been figured on and the dealer in filing a lien has been two days short.

J. S. Kemper, of the Lumberman's Casualty Insurance Co. of America, spoke on mutual insurance and the workman's compensation act.

G. J. Daniels, of the Central Lumber, Sash and Door Salesmen's Asosciation, was called on for a few remarks and stated that two things absolutely necessary, in his opinion, in order to sell goods these days are character and confidence—character on the part of the salesman and confidence on the part of the purchaser. Mr. Daniels stated that the salesman of today is a necessity from the manufacturers' standpoint, and the dealers find it to their advantage to deal with salesmen who expect to return and consequently aim to give value and service, in addition to the eager desire to sell that salesmen are supposed to have when they go out after orders.

Retailing of Cement.

At Wednesday's afternoon session of this association it was decided to appoint a committee to meet the cement manufacturers and discuss a satisfactory basis on which cement can be sold through the dealer. Today very unsatisfactory arrangements are in vogue which keeps cement at a price that neither the dealer or the manufacturer wishes to sell the product. In a great many instances cement is sold merely as an incentive to secure orders for other materials. Then, again, if the order is large enough, some of the manufacturers will bid direct and place themselves in competition with their own dealers. The committee appointed by President Hall to meet the cement manufacturers consists of Messrs. Steele, of LaSalle; Halliday, of Cairo; Paddock, of Pana, and Bayne, of Ottawa.

The resolutions committee presented a report in answer to the invitation of the Panama-Pacific International Exposition to hold their convention at San Francisco next year. The resolution is as follows:

Whereas, the Panama-Pacific International Exposition has extended to the Illinois Lumber and Builders' Supply Dealers' Association an invitation to hold its 1915 convention in San Francisco, or to have a special day to be known as "The Illinois Lumber and Builders' Supply Dealers' Association Day"; therefore, be it

Resolved, That this association, in convention assembled, does hereby authorize the president to appoint a special committee to make arrangements for such members of this association as may desire to do so, to unite in a party to go to San Francisco during the period of the Exposition in 1915, and that a date be set for that purpose, preferably during the time when national lumber interests are meeting in San Francisco.

Resolutions were also passed deploring the death and expressing the sympathy to members of the families and immediate friends of the following-named members and friends who have died within the past year: Met L. Saley, Hampton, Iowa, March 30, 1913; A. Eilsen, Springfield, Feb. 6, 1913; Paul Lachmund, Milwaukee, Wis., Feb. 23, 1913; J. D. Porter, Kewaunee, date unknown. The resolutions committee consisted of Scott Johnson, Rankin, chairman; C. O. Foulke, Macomb; F. L. Hill, Danville; M. A. Saunders, Kewaunee, and P. T. Langan, Cairo.

L. N. Bayne Chosen President.

The most interesting part of Thursday's session was the election of officers. When the chairman called for a report of the nominating committee the members present became exceedingly quiet because of their desire to hear at the earliest opportunity the names of their new officers. They reported the following list of officers, which were immediately elected: President, L. N. Bayne, Ottawa; vice-president, L. T. Langan, Cairo; board of directors, E. L. Stotlar, Marion, and Dan Macknet, Decatur.

When introduced to the audience by retiring President Hall, President Bayne confined his inauguration speech to one sentence. His words were these: "This is an honor that has come to me entirely unsolicited, and I hope at the end of the year you will have no reason to regret you have elected me as your president."

Mr. Langan warned the association that they had made a mistake in electing him their vice-president. It is admitted that he is a rather modest man, but a regular "bear" for work. In the words of President Hall "Mr. Langan is the live spirit of the Southern Illinois Association."

The session was drawn to a close after a few remarks by Secretary George W. Jones. While Mr. Jones' talk was entirely impromptu, it might be given the title "Risks in Business." He emphasized the fact that it is not always the financial rating of men that goes the furthest in business. When a grocer sells on credit, he is taking a moral risk. The lumber dealers of Illinois do not always put entire confidence in a man's financial rating. Quite frequently they are willing to take a moral risk.

President Cormack Gets Busy.

Shortly after his inauguaration as president of the National Builders' Supply Association, Edward K. Cormack got in touch with the Interstate Commerce Commission for the purpose of having them delay any action that might be taken relative to changing the status of the service which is at present being rendered by the railroads to industrial sidings. Mr. Cormack telegraphed, under date of Feb. 25, to James H. Harlan, at Washington, D. C., as follows:

"The National Builders' Supply Association representing thousands of small dealers located throughout the United States and having their own industrial sidings and tracks, request that nothing be done to change the status of the service at present being rendered by the railroads to industrial sidings. We desire to prepare and present our side of this question. Would appreciate having an opportunity to do this during April. Advise what we may expect."

New Yorkers to Meet March 18.

The second annual meeting of the New York State Builders' Supply Association will be held at the Seneca Hotel, Rochester, New York, on March 18-19. President George D. Elwell and those associated with him in preparing for the coming convention promise an attractive program.

One of the features of the two days' session will be an exhibition in moving pictures of the production of cement from its natural state in the rock to the finished product in the bag. Two or three other talks on subjects of general interest will be given by men of prominence.

It is the intention of the association at this time to tell the dealers of the Empire state just what the organization members are planning. An attempt is being made to induce all dealers of builders' supplies to attend this convention in order that they may become familiar with the objects of the recently organized association. Mr. Elwell states that he is confident that every dealer who will attend the coming convention will surely realize that the advantages of this association make membership well worth serious consideration.

N. B. S. A. Directors Meet.

The board of directors of the National Builders' Supply Association held a meeting at the La Salle hotel Thursday morning and proposed that a change be made in the constitution whereby the treasurer will be considered in the future as a member of the board of directors. Acting upon this suggestion, they made the necessary changes whereby J. J. Voelkel, the new treasurer, will be considered one of the board during this year.

It was announced that no secretary has as yet been appointed, and in all probability there will be none until after President Cormack returns from a trip which he is about to make among Southern dealers for the purpose of organizing them into a district association, which it is hoped will later become affiliated with the National Builders' Supply Association.

Many of the dealers left for their homes on Thursday, but a few of them decided to remain over Sunday, spending a good part of the intervening time at the Cement Show.

Faires Heads Memphis Exchange.

Memphis, Tenn., Feb. 21—It will be interesting to the cement trade and allied lines to know that J. E. Faires was elected president of the Memphis Builders Exchange. J. W. Williamson was elected treasurer. The secretary is elected by the Board of Directors, who as yet have not acted on this matter.

CEMENT SHOW A MARVELOUS EXHIBITION

The Seventh Annual Chicago Cement Show Excels All Previous Efforts—Thousands of Interested Visitors View Wonderful Exhibits.

The Seventh Annual Cement Show of the Cement Products Exhibition Company flung wide the doors of the great Chicago Coliseum Thursday evening, Feb. 12, and the public quickly filled the biggest assembly hall on earth to witness the crowning effort of the cement and concrete industries.

The experience gained in all of the former shows was concentrated here to give the best there is possible to assemble regardless of the cost and without measure for the effort that has been required to bring it to pass.

The decorations of the Coliseum were especially designed for this occasion and added that touch of art, of color, and of balance which makes the first impression of the observer one of contentment and satisfaction. It is no easy task to get up an exhibit or to concentrate a number of exhibits so as to make a national cement show. None of the machines or appliances that are used in the mixing and handling of concrete are of themselves things of beauty. To make a show attractive of which the integral parts lack beauty has been the task which can only be accomplished by a great deal of study, a great deal of experience and concentrated ability.

Beginning with the first cement show, each succeeding year has marked important improvements in the appliances that have been used to produce concrete, and those which were exhibited in the show just held have little or no resemblance to those that were considered the best obtainable at the time of the first cement show. There is no doubt that the cement shows have had a tremendous influence in these improvements, as they have developed from year to year.

The Chicago Cement Show, always held in February, has come to be considered as one of the established functions of the business year with a large majority of the most enterprising and progressive contractors who have attended cement shows and learned to use better methods to apply to their practical operations and who have found them for that reason profitable. The brightest men in the engineering profession, and architects who aspire to create new motives in design and in principles of construction, thronged the aisles of this great exposition to pick up the suggestions which practical men and inventors of machinery are making possible for them to apply in their high and civilizing art.

Like every important improvement which has a definite bearing upon the progress of civilization, the cement show has been attractive to the ladies and it is to be remembered that the attendance of women at the cement shows has grown during the last two or three expositions to a very noticeable extent. The musical program that was prepared was one which attracted no little attention, and the arrangement of the exhibits was such as to make the enjoyment of the same just as full as it is possible in connection with anything so noisy as the cement show idea will permit.

Grouped around and in a measure connected with the idea of this exposition occasion were a number of conventions in which the most eminent and prominent attendants of the exposition are deeply interested. These were the Illinois Lumber & Builders' Supply Dealers' Association, the National Conference on Concrete Road Building, the National Association of Cement Users, now known as the American Concrete Institute, the Interstate Cement Tile Manufacturers' Association and the National Builders' Supply Association. Each of these organizations represents the focused interest of the best and ablest minds engaged in these different activities, and they are of nation-wide consequence, reaching to the safety and comfort of almost every citizen and even to the convenience and happiness of generations yet to come.

The Cement Products Exhibition Company, through the medium of its annual cement show at Chicago, must be considered as the standard bearer of the mighty industry which is marching on to progress in a civilization that is higher than we have yet known, a civilization of safe and sanitary homes, located in clean and sanitary towns and cities, connected by well-drained and well-maintained roads and provided with water supply and sewer disposal as well as many other of the important features beyond anything that has yet been attained on the face of the earth.

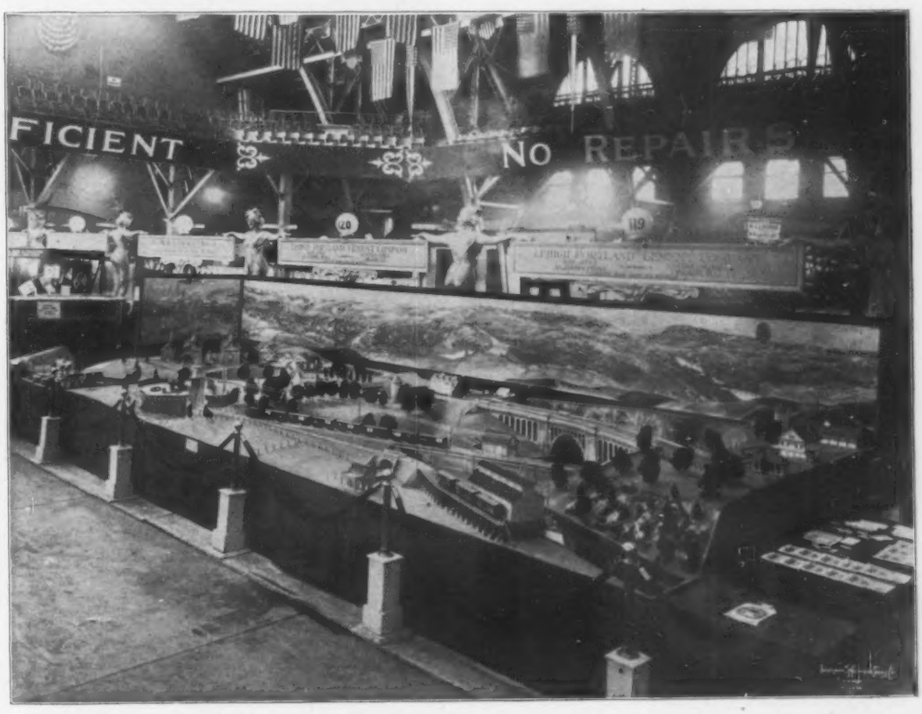
The educational features of the cement show can not be overestimated, for in many cases those who profit most by their attendance at the cement show do not realize its value until months have passed, and in many cases the use of the information gained at the cement show has proved to be the most available and most profitable knowledge to determine the method and conduct of operations which had not come up for consideration at the time when such knowledge was gained. There is no doubt that the tremendous, steady and well-sustained growth of concrete products of every type and concrete improvements of every kind has been conceived, perfected and protected and made to become popular largely by the work of the Cement Products Exhibition Company through the medium of its annual Chicago Cement Show.

The Cement Show is of interest to every citizen who expects to make his or her home in a modern community and appeals to every man or woman who has a family to protect with a safe and sanitary home, to every official who wants to know at first hand the features of modern municipal improvements and their cost and application; so that every man and woman in every walk of life has a direct personal and community interest in the Cement Show, and the things which the Cement Show is designed to and does teach, better than such a collection of ideas can be concentrated and presented in any other way known to man.

The show itself was not such a large exhibition in point of the number of exhibitors as several of the earlier shows. More than once we have had the Coliseum and the Annex filled, as on this occasion, and besides that the gallery was well filled all around; but still the 1914 show exhibited and outranked all its predecessors by the character of the exhibits and the quality of the concrete working machinery, the perfection of which has largely been worked out through the influence of former cement shows by the competition of comparison made on the floor of the Coliseum.

It is to be remarked that practically every machine exhibited this year was one that has made a practical record and has well earned its position in the commercial world upon the basis of merit delivered and available for the user. In fact, most of the machines on exhibition were standard tolls of the industry and many of the exhibits were visited by former purchasers who were glad to testify of the merits of the machines on exhibition. The exhibitors were for the most part men who had attended former cement shows, so that their experience had taught them the temper of the crowd and the qualifications that would be called for by the experienced users of concrete machinery. We personally interviewed a large number of exhibitors and found practically a unanimous expression of satisfaction in the results that were obtained by participating in the 1914 exhibition.

The decorations in the Coliseum were not so costly as we have had in former shows on several occasions, but they were much more effective than anything we have previously had, so that with one glance from the entrance of the Coliseum the visitor was convinced of the preparedness of the exposition company to put on a cement show. While it was impossible to keep the aisles clear with such crowds as filled the Coliseum day by day, the arrangement and conduct of the show was such as to make it entirely comfortable for every visitor to study out the details of every exhibit in which they might be interested. There was no appearance of hurry or rude jostling, even in those hours when the crowd was thickest, but every visitor was so well taken care of that without friction or inconvenience of any kind they found polite accommodations. Many of them placed profitable orders on the books of the exhibitors and doubtless there is much business to follow as a result of the educational influence of the 1914 show.



WORKING MODEL OF THE LEHIGH PORTLAND CEMENT CO., WHICH ATTRACTED THE CROWDS AT THE CEMENT SHOW.

The Chicago Cement Show has grown into one of those established institutions which is expected every year, like one of the national holidays. On the occasion just passed our show indeed started on Lincoln's birthday and ended on Washington's birthday, the two great February national holidays of the mid-winter season. Many people have learned to make their engagements so as to meet in Chicago upon the occasion of the Cement Show and it is now just as much a fixture as the courthouse or the lake front park. And doubtless as the years go on we will have cement shows that will develop the advanced uses of cement up to the place where cement will be purchased for household use almost like the scrubbing brush or the barrel of salt. In fact, there is a time not far distant in the future when no family larder will be complete without its cement receptacle constantly filled for the minor uses of repairs and improvements which everybody will learn how to make with their own hands, the same as they do the kitchen garden at the present time.

CONCRETE INSTITUTE HOLDS IMPORTANT SESSIONS

Addresses and Proposed Standard Specifications for Concrete Road Building Meet With Keen Interest of the Delegates.

The formal opening of the tenth annual convention of the American Concrete Institute, formerly the National Association of Cement Users, was held at the Auditorium Monday evening, February 16, the meeting being called to order by President Richard L. Humphrey a few minutes after 8 o'clock. His opening address follows:

"It is interesting to note that since the organization of this association as the National Association of Cement Users in Indianapolis 10 years ago there has been great progress in the use of cement and the consumption of Portland cement, and the use to which it has been put has exceeded the most roseate dreams of those who were at that meeting when this organization was launched. There can be no question as to the value of the work this organization has done. It has established many standards; it has stimulated the knowledge as to the use of cement and the work that it can do is so great that it is only limited by its resources.

"We met in Chicago on our third convention. We have been here since. The warmth of our reception, the attendance and all the other elements for which Chicago is famous, makes us come back frequently. We invite everyone in Chicago and would like you all to participate in our discussions and give us the value of your experience while here.

"William H. Sexton, Corporation Counsel, who was to address us on behalf of the mayor, is not here and I will ask Henry Ericsson, building commissioner of Chicago, to speak to us."

Mr. Ericsson was both serious and jocular. He began by saying that, knowing the mayor so well, he "deemed it safe to welcome the members to the city." His address began with the recitation of "The Builder," from Longfellow, which was singularly appropriate from the standpoint of the concrete man. "In the city building department," he said, "they inspect all plans and buildings, and of course concrete construction come in our eye also. Perhaps the most interesting development is flat slab construction. About two years ago permits were applied for to use flat slab construction in the city of Chicago. The department decided that before permits were issued sufficient evidence must be furnished. A test was made on buildings in the city. This was not the ordinary test in which panels were placed to load upon. In this test panels were loaded and the actual stresses in concrete were obtained by an extensometer." (Mr. Ericsson explained that that instrument could measure the thousandth part of a red hair, therefore its efficiency is apparent to all.) He then devoted a few minutes to an explanation of the tests, saying that they (the panels) can now be safely applied. "As a general rule," he said, "concrete can compete with heavy mill timber."

President Humphrey then introduced Elmer C. Jensen, president of the Illinois Chapter of the American Institute of Architects, who welcomed the delegates on the part of the architects, saying that it gave him much pleasure to welcome this institute to Chicago. His talk was given in great part to an appeal for better finish of concrete construction and he believed that the architects should develop and devise a suitable finish for concrete and cement. "Concrete ought to be one of the noblest materials we have got," he said. "It has been abused, and the time has arrived where we ought to do it intelligently. Concrete users should be inventive and should experiment with concrete made under pressure." Mr. Jensen said that he feels it is in that direction that we can find a more economical and intelligent use of concrete.

W. H. Finley, chief engineer of the Chicago and Northwestern Railway, was then introduced and made a stirring speech in favor of better care in and treatment of concrete work. He told some of his ideas and experiments in concrete, saying that he had used it more than 32 years, always in a conservative way. "It has been my privilege," he said, "to witness the change in construction made from wood to iron, iron to steel and stone to concrete." Mr. Finley said that he had a very high opinion of American Portland cement and never had occasion to change his views. "Today we have the most uniform product that is offered to the contractor of any kind of material we are using in construction work," he said. "Concrete today is still an engineering proposition and there is no question about the future of concrete." He believes that it should be done under the hands of trained men and advocated making the designs of pleasing character. "Properly handled," he said, "it is the most remarkable material ever invented on behalf of the engineer in the carrying out of his ideas."

President Humphrey remarked that concrete is a comparatively new material and cannot be mastered in the course of a very few years. He said that the next ten years would show much progress and the structures of that time will greatly surpass those of today. He remarked that the French engineers as a measure seemed to have a better conception of reinforced concrete, particularly in the matter of design and the carrying of loads. He cited some bridge work done in this country, however, that has great artistic features and believed that it will increase as time goes on. He gave as his opinion that the time

RICHARD L. HUMPHREY, PRES., AMERICAN CONCRETE INSTITUTE, PHILADELPHIA, PA.

is soon coming when the failure of a concrete building would not reflect against the material.

He then read a note from Mr. Sexton, just received, explaining that owing to a misunderstanding of the date he was unable to be on hand to represent the mayor, expressing his sincere regret at his failure to appear.

President Humphrey then announced that, following the usual custom, a committee on nomination and also a committee on resolutions would be appointed, and mentioned those who were to serve, as follows: Committee on nominations—E. J. Mehren, New York City, chairman; L. T. Sunderland, Kansas City, Mo.; Cloyd M. Chapman, New York City; A. E. Lindon, Chicago, and Sanford E. Thompson, Boston. Committee on resolutions—Joshua L. Minor, New York City, chairman; W. A. Slater, Urbana, Ill.; H. B. McMaster, Chicago, and A. J. Maynard, State Farm, Mass.

The meeting then adjourned until 9:00 Tuesday morning.

First Session.

The first session of the tenth annual convention of the American Concrete Institute came to order at about 9:00 a. m., President Richard L. Humphrey presiding. He explained to the delegates assembled that this was the tenth annual convention, and not the tenth anniversary, as many supposed. He stated that Henry G. Shirley, chief engineer, state roads commission, Baltimore, Md., who was to deliver a paper on "Concrete Road Construction in Maryland," was unable to be present, and that R. C. Stubbs, of Dallas, Texas, would begin the session with a paper on "Some Requirements in Vibrolithic Concrete Pavement Construction."

Mr. Stubbs said that he proposed to limit his discussion to the manner in which concrete is used in street pavements and concrete roads. He stated that density, contraction, grading and protection are the four most important points. "While the gradation is not the most important thing to get a dense property," he said, "it is not difficult to calculate the properties that will make the most dense concrete. The voids created by the addition of surplus water is not the only damage done. Perhaps a great damage is wrought by the carrying away of particles of cement which, upon evaporation, makes them almost impervious to moisture. If the mass is highly porous by the use of water, the crystal formation is largely of a needle shape. If the mass is of high density the form will be of crystal. The proper amount of water is that up to a point without developing clarification. Expansion is negligible if we properly provide for construction. Contraction comes from several causes, while expansion comes from temperature. The first contraction comes by settlement during the moments of clarification. The second comes from shrinkage during the drainage which may underline the percolation. The third is shrinkage after the initial set has taken place, which is the worst form. Another form of contraction is crystalization, which goes on for several months. It therefore becomes important that we keep as much of the original moisture in the mass as possible.

"Under the head of subgrade, I have seldom heard of the engineer objecting to the rolling of the subgrade. I am convinced that more pavements are damaged by over compression than too little. Uneven compression is responsible for much damage which is caused by a raising up of the pavement. Transverse cracks are often started by some form of shrinkage. Where a soil is easily compressed I go about this with precaution. Concrete can carry a great load after one month but will not resist abrasive traffic for several months."

R. J. Wig asked the speaker what his experience was with rough and smooth subgrades. Mr. Stubbs replied that he believed much depended on the smoothness of subgrade. "A subgrade should be absolutely smooth because the movements of the earth has free access," he said. If the concrete is very rough underneath it has a very heavy pressure.

H. J. Kuelling, county highway commissioner of Milwaukee, Wis., was next introduced to give an address on "Methods and Costs of Concrete Road Construction in Milwaukee County." He stated that Milwaukee started in 1912 to build concrete roads and a great deal of misfortune had been experienced the first year. They attempted to cut down costs, Mr. Kuelling said, by using local gravel without separating. In 1913 we naturally decided to change our ways and we now separate all materials in the sand and stone and in every road but one all material was washed to take out every bit of clay matter. This change brought us into considerable more expense. We have used, during 1913, more glacial gravel which we shipped 100 to 150 miles. In one job we used about one-half crushed granite. We haven't used any crushed limestone as yet.

At the present time we do not own a roller in Milwaukee county and many miles of road have not had the road compressed in any way. We built, in 1913, twenty-two miles, with no cracks. Some of the roads have not been contracted on the subgrade at all. I do not think it necessary to contract the subgrade. The aggregate we are attempting to keep down to one and one-half as the larger size. The sand is below one-quarter inch. We have paid considerable attention to the per cent of voids we obtained in our sand and stone. We find it pays us to secure the sand and stone that have the lower varieties. A 1-2-3½ is what we use, but we can safely use a 2-4 mixture below 40. I do not believe in blindly adopting any mixture. We use four brands of cement and test it all at the mill. We have the cement delivered on the job, whether doing the work ourselves or by contract. In all cases we demand that the contractor take care of the sacks. They are bundled immediately and tagged. The contractor then stamps them and they are sent back to the mill.

During the coming season we are going to build considerable mileage without protective plates. We are placing our joints 25 feet apart and are going to stretch it to 50.

"I believe that it is not a matter of expansion, but contraction. In the matter of construction

forms, first we use wooden forms with the protection of angle iron or panel iron on top as a straight edge. I have the man set 50 to 100 forms ahead on each side. We get considerable material ahead, if possible, and stretch the sand on one side of the road and the stone on the other. We have the cement come between the roads. We have placed all concrete without gravity spouts but if I were going to build a two-course pavement I would prefer the boom. The roads are built 16 to 18 feet wide, six inches thick on the sides and eight inches in the middle. The work is followed up as soon as possible with a man with a wooden float. He keeps back until the mortar is more or less stiff. The stiffer consistency we can have the better I like it. In regard to the curing, we use a canvas if it is exceedingly hot, and I am more afraid of a windy day than a hot day. We cover the canvas until it will stand the pressure of the earth from the side and cover with one inch to two inches of dirt along the road and keep it sprinkled for about five days. Then we clean it off at the end of about 20 days.

"Regarding the shoulders, during 1914 we are not going to use them on 18-foot roads. We are going to put in earth shoulders. We do not intend to follow the plan of putting in bituminous treatment in work in 1914."

Considerable discussion followed Mr. Kuelling's paper, after which President Humphrey introduced C. W. Boynton, chairman of the Committee on Concrete Roads and Pavements Presenting Revised Specifications, whose report was adopted after a few minor changes, a copy of which will be presented in a later issue.

At the evening session, which met at 8:00 p. m., President Humphrey opened the proceedings with his annual address on "The Use of Concrete in Hydraulic Works." "The earliest use of concrete was in connection with canals," he said, "and the early canals were built with natural cements, and the movement established in various parts of the country. It was used very extensively in harbor work later."

He stated that the United States engineers were pioneers in this work. He thereupon showed a number of very fine stereopticon views illustrating the manner in which cement had been extensively used in hydraulic work in the Panama Canal and in various parts of the United States. "Concrete is a very important building material," said Mr. Humphrey. "It is being used very much for the construction of piles and I believe that in time it will entirely supplant the wooden pile. I think that concrete is one of the most economical and durable materials that can be used in hydraulic work. In sea water construction it is necessary to observe greater precaution than in fresh water work. There are many structures a great many years old that have successfully resisted sea water. Some work done in 1886 in Panama shows no evidence of softening."

President Humphrey then introduced B. S. Pease, engineer, Reinforcement Department, American Steel and Wire Co., Chicago, Ill., who gave an address on "Reinforced Concrete Roadways and Pavements." Mr. Pease cited the actual necessity for the use of steel in reinforced concrete pavements. "It has been definitely shown," said Mr. Pease, "that a pavement with a concrete wearing surface is low in first cost and gives a slight resistance to traffic. As to its maintenance, our experience leads us to believe that it is lower than any other type of surface. There has been one great objection to this material, and that is the natural tendency for the formation of cracks. It has been definitely shown that concrete will contract during the setting period. The less the amount of water, the greater the amount of contraction. Experience has shown that the small unit for the prevention of cracks is expensive. Some have filled the cracks with an asphalt preparation. This method requires a certain amount of expense.

"The most recent method is to use a steel reinforcement, properly placed, depending upon conditions. Considerable thought has been given to the reinforced concrete pavement. Reinforcement gives structural strength to the slab when laid on a poured sub-grade."

"For two-course pavements the logical position of the reinforcement is between the base and the wearing surface. This will prevent the formation of cracks along the crown. In single course pavement the reinforcement should be placed about two inches below the surface. The principal change in the length of a concrete pavement is contraction. The steel will prevent the total shortening effect. If the expansion joints are placed at a distance of thirty feet apart the reinforcement should be increased. The various members of the steel should be closely spaced. A woven wire mesh will come nearer to fulfilling the specifications."

A. B. Cohen, concrete engineer, Hoboken, N. J., was next called upon to give his paper, entitled "Progress and Development of Concrete Work on the Delaware, Lackawanna & Western Railroad." Mr. Cohen's talk was very interesting and instructive, being illustrated with stereopticon views of bridge and station work done in concrete of great magnitude and importance in the rugged mountainous section through which that line extends.

President Humphrey then explained that owing to illness in the family of R. J. Wig, associate engineer and physicist, Bureau of Standards, Washington, D. C., his paper on "The Present Status of the Investigation of the Effect of Alkali on Cement Pipe," which was to have been delivered at tomorrow's session, it was found necessary to bring this talk up as the next order of business.

As the hour was growing late, Mr. Wig shortened his discourse very materially and illustrated the same with stereopticon, which showed in a striking manner the effect of alkali on concrete tile and other constructions in the western country. Mr. Wig explained that in connection with the government's investigation of this deadly influence measures were being taken for the restoration of the lands which its action had devastated. Mr. Wig also brought out the point that magnesia, contrary to general opinion, is desirable in concrete which is exposed to the action of salt water.

After explaining that tomorrow's session would be devoted to a discussion of the manufacture of cement tile and that a joint session would be held with the Interstate Cement Tile Manufacturers' Association in the afternoon, the meeting then adjourned.

Wednesday's Session.

Wednesday morning's session of the American Concrete Institute was called to order promptly at 10 o'clock, the meeting to be held jointly with that of the Interstate Cement Tile Manufacturers' Association.

The report of the committee on building blocks and concrete products, C. K. Arp, chairman, was the first order of business. Mr. Arp reported that the committee did not care to make any changes in the standard specifications for any kind of concrete products at the present time. He advised that the original thought was to suggest standard specifications for concrete posts, but that the subject had not been taken up as yet, as on canvass it was found that no new specification could be formulated without working a hardship on the manufacturers of all various systems which are really doing good work. The committee recommended that the matter be not gone into this year, but that it be thoroughly canvassed and at next year's session or at some future meeting specifications of this kind be drawn up.

A. Marsten, director Iowa Engineering Experiment Station, Ames, Iowa, was next called upon to give an address on "Specifications for Drain Tile." "At present, there are no standard specifications for drain tile," he said. "It has been the custom for each drainage engineer to follow his own individual notions in his specifications and the kind of manufacture has depended largely on his notions." Mr. Marsten stated that there had been a great many failures of large drain tile owing to a lack of strength to support the weight of the ditch filling the material. "In recent years," said Mr. Marsten, "the use of large drain tile has increased enormously, until now they can be made up to 48 inches in diameter.

"Committee C-6, of the American Society for Testing Materials, has been in existence for three years. They have just completed a series of 600 strength tests and have under way a series of extensive absorption tests."

Mr. Marsten stated in regard to the requirements which should be incorporated in the standard specifications for drain tile that there should be "general requirements," "absorption requirements" and "strength requirements." Additional requirements, such as special tests for durability, freezing and thawing and resistance to acids and alkalis may be added.

Under the head of general requirements, Mr. Marsten said that they should be good sound tile, free from cracks and fire checks, uniformly strong, dense structures, giving a clear ring and should be regular and true in shape.

In regard to absorption requirement, he stated that the percentage of absorption of drain tile is not a cardinal quality. "It is agreed upon by all engineers," he said, "that the proper place for the water to enter the tile is through the joints and not through the pores of the tile walls."

For the strength requirements, he advocated a strong enough tile to support the loads imposed by ditch filling. He believed that it should be able to carry the loads liable to be carried, multiplied by a reasonable factor of safety.

Following Mr. Marsten's paper there was considerable discussion of many of the points brought out, at the end of which George P. Dieckmann, chief chemist of the Northwestern Portland Cement Co., Mason City, Iowa, read his paper on "Result of Tests on Plain and Reinforced Concrete Tile." He stated that the tests made were only the beginning of a more exhaustive investigation to be carried out along this line. "The tests were started at the suggestion of Mr. Atwood," he said, "and carried out at the plant of the Armstrong Cement Tile Co. The testing was done with the assistance of the engineering department at Ames, Iowa, and was witnessed by Prof. Marsten, Prof. Stewart and Mr. Atwood, members of committee C-6 on specifications for drain tile of the American Society for Testing Materials. A great number of engineers were also present.

"The mixture employed consisted of one part cement to three parts sand. The semi-wet mixture was used, the materials mixed dry in the batch mixer and then wetted in the continuous mixer. Care was taken to mix the mortar as uniformly as possible. The tile was made on a Quinn tile machine, power tamped and cured for 48 hours in steam and for the remainder of the time cured in air until tested, with the exception of a few pieces. Then the tile was tested again with the Iowa standard on the Ames tile machine. All tests were made on 28-inch tile with 1/10 wall thickness. Wire hoops were imbedded one-half inch from the outside and one-half inch from the inner wall.

"The first checking of the tile will practically average 6,050 pounds. Those with three wire hoops showed an increase of 28.4 per cent over the first checking; those with four wire hoops showed an increase of 46.2 per cent; those with five wire hoops showed an increase of 88 per cent and those with six wire hops an increase of 102 per cent. More work will be carried on in the future."

As a large number of the men present at the session were manufacturers of concrete products, much interest was manifested in the paper presented by E. S. Hanson, Chicago, Ill., on "The Lay-Out of Concrete Product Plants."

This was practically the first time that such a topic as this has been taken up and various plans of plants compared and principles underlying the design brought out.

The speaker traced something of the development of concrete products plants, from what he chose to term the "back-yard" stage up to the point of permanence and efficiency. He said that concrete products concerns are now for the most part housed in plants built especially for the purpose, or in old buildings which have been converted permanently to this purpose by considerable modeling, but he affirmed that the limit of efficiency in plant lay-out and equipment had not yet been attained, and that the model plant could not as yet be shown because it has never been built.

He stated that the concrete product is no longer an experiment, so that a man who has fair business ability need no longer hesitate to invest in the business.

He deprecated the use of cull blocks or poor products of any kind for the construction of one's own plant, saying that such buildings ought by all means to be an advertisement for the industry.

Mr. Hanson especially insisted that curing rooms should not be made larger than to accommodate a half day's run, so that there need be no possibility of the products drying out in currents of air.

Taking into consideration the rapid growth of the industry and constant application of cement to new uses, he suggested that plants be designed along broad lines and room be provided for the addition of new equipment as developed.

The paper was illustrated with nineteen lantern slides, showing the lay-out of various plants, some of which were to be commended and others shown because of points which needed to be corrected.

Evening Session.

The evening session was called to order by President Humphrey at 8:00 p. m. sharp. J. E. Payne, engineer General Fireproofing Co., was the first speaker announced, his address being entitled, "Modern Concrete Roof Without Forms." Mr. Payne advocated the use of ribbed-expanded metal, saying that they formed a baffle rod reinforcement. He cited a number of examples where cement mortar had been plastered on expanded metal, saying that concrete being placed above the metal the gravity system does not have to be discarded. "The loss by concrete wet enough to be handled in spouts was only five per cent on a slat two inches thick," he said.

At the conclusion of Mr. Payne's talk, President Humphrey announced that F. R. Harris, civil engineer U. S. Navy, Brooklyn, N. Y., who was to have delivered a paper on "Concrete, as Employed in the Construction of Wharves, Quay Walls and Dry Docks, at the Brooklyn Navy Yards," had been sud-

denly ordered to Honolulu for a sojourn of three months, and therefore would be unable to appear.

P. H. Bates, chemist, Bureau of Standards, Pittsburgh, Pa., was next introduced, and delivered a paper on "The Properties of Portland Cement Containing a High Percentage of Magnesia." Mr. Bates stated that the cements used in the tests were manufactured in the Bureau of Standards. "We started with a raw mixture of clay and limestone and later replaced the limestone with dolomite," said Mr. Bates, "and the clinker was just a little short of 19 per cent of Magnesia and 24 per cent of lime. We wished to combine the magnesia with the silica or alumina to find out how it affected the cement." Mr. Bates also added that concrete could be made of cement containing 10 per cent of magnesia without showing cracks. "The old standards were taken from the minority report of the German Portland Cement Manufacturers' Association, known as the Dieckerhoff test." Later in his talk Mr. Bates stated that it had been found magnesia could be contained without any new compounds. "We did not find any new compounds," he said, "until we reached nine and one-half per cent magnesia. We also found that the gravity was not changed. The harder you burn cement the lower the gravity becomes. Higher-burned cement gains a very quick initial and a slow final set. High-magnesia cement, if unsound, is due to free lime and not to magnesia. Cement containing magnesia should stand up better in sea water than one low in magnesia. As the magnesia increased we got a decided difference in the appearance of the clinker."

"Combination of Reinforcement and Forms in Concrete Construction" was the title of the next paper, President Humphrey explaining that T. W. Murray, manager of the Trussed Concrete Steel Co., of Detroit, Mich., was unable to be present and that his paper would be read by Mr. Ogden. "Reinforcement today provides for all strains, compression and continuity, etc. We first introduced reinforced hollow tile, later substituted steel floor tiles." Mr. Ogden talked about expanded metal for monolithic construction, saying that its thinness added considerably to the size of a room. He stated that the development of this type of expanded metal was such that there are now three distinct types manufactured. Pictures were then thrown on the screen showing the complicated machinery which manufactured the expanded metal. Mr. Ogden explained in some detail the process of its manufacture. Pictures of many examples of reinforcement work were shown, among the most notable being those of Mexican structures which had undergone a seige of cannon, showing the remarkable manner in which the buildings stood up under the fierce bombardment.

President Humphrey then stated that L. C. Wason, president of the Aberthaw Construction Co., would give a few remarks regarding some experiments he had made on the action of sea water on concrete. "The tests were made with a normal Portland cement," said Mr. Wason. "The first test was a 1-2-3 mixture, dry, medium and wet; the second a 1-2-4 mixture, dry, medium and wet, and the third was a 1-3-6 mixture, dry, medium and wet. The results were as follows: The first specimen broke in the middle; the second was very porous, so that water could be poured through it; the third, or very wet mixture, was in good condition generally. The specimens were left in the water four years, and indicate that the density of the concrete, as determined by the amount of water, was not nearly as good as the specimen which was wet. Mr. Wason stated that he believed it too early to draw any positive conclusion from these tests. He thought the action probably 19-20 mechanical and 1-20 chemical.

C. D. MacArthur, chief engineer of the Blain Steel Construction Co., then read a very interesting paper on "Steel Forms in Concrete Construction." Mr. MacArthur said that it is the duty of contractors to look into the most economical methods of construction. He believed that some work did not require special forms and also stated that he did not deem steel forms necessary in house building, because he did not think the character of a residence justified the use of form construction of any kind. A number of stereopticon views were shown of forms used in sewer, canal and other construction, explaining and giving the cost data of handling the forms.

L. C. Wason was then called upon to deliver his paper on "The Problems of the Contractor." Mr. Wason stated that as the hour was growing late, and owing to the fact that the paper had previously been published, he would quote only a few paragraphs of the same, and, regardless of the late hour and the busy day which the delegates had put in, it was found to be quite helpful in its suggestions.

The meeting then adjourned until 10:00 a. m. Thursday morning.

Thursday's Session.

Thursday's session of the convention of the American Concrete Institute was called to order by President Humphrey at about 9:30 a. m., the annual report of the board of directors being the first order of the day and was delivered by Secretary Edward E. Krauss, being in part as follows:

"Since the last convention the board has held three meetings. Seventy-four new members have been added, with thirty-five dropping out, making the total membership 892." Mr. Krauss then read the report of the treasurer showing the finances to be in the usual good condition, but stated that the publication of new data would mean an increased expense which would have to be met by appropriation from the membership. He advocated the continuation of the publication of the monthly journal and stated that the proceedings of the Kansas City convention would be mailed in March, those of the Pittsburgh convention now being published in the monthly journal.

Mr. Krauss added that a series of tests of columns 20 inches in diameter and 12 feet long were being carried on. He also dwelt for a short time on the changing of the name of the association from "National Association of Cement Users" to its present title, "American Concrete Institute." He stated that it was the policy of the association to limit the number of papers that were to be read at the convention to as few as possible, but that on this occasion it had been found practicable to increase the number somewhat. It was desirable to have as many of the listed papers read as time would permit, but that the encouragement of discussion was of much benefit to the members and brought out much information of great value that might not otherwise come up. The report was found entirely satisfactory to the members, who voted to accept it in full.

The committee on nominations then gave its report, the following officers being nominated, election to be certified by letter ballot of the members:

President, Richard L. Humphrey.
Vice president, L. C. Wasson.
Treasurer, Robt. A. Cummings.
Director for the second district, Edw. D. Boyer, of New York.
Director for the third district, Robt. W. Leslie, of Philadelphia.
Director for the sixth district, John D. Leonard, of San Francisco.

These proposed new officers were voted satisfactory by the members.

President Humphrey, in thanking the members for the renomination, said that he appreciated the high honor that had been conferred on him for the tenth time, and that he had lent his best efforts and continued to upbuild the Institute. He stated that he could not accept a renomination next year, and that after serving this terms of office he should not be eligible for re-election. He hoped during the coming year to bring the association to where it would come out of its difficulties.

George C. Walters, of Atlanta, Ga., invited the association to hold its next meeting in that city, stating that the association had been responsible for the great development of the concrete industry in his section of the country and that he represented the governor, the mayor and the chamber of commerce.

Mr. Mathews, of San Francisco, then made an appeal to the members to hold the next meeting in his city, during the time of the San Francisco Exposition. He pointed out the benefits to the association, both from a business and pleasure standpoint. He stated that a cement show was being organized there and that special low rates would be granted by all railroads.

President Humphrey thanked Mr. Walters and Mr. Mathews for their kind offers and said that the matter would be referred to the board of directors.

The report of the committee on the revision of the by-laws was then heard. The by-laws of the Institute were published in Number 2 of the Journal, under date of December, 1913. These changes suggested by the committee were approved and adopted and will be published in due time in the Journal.

Alfred E. Lindau, chairman of the Committee on Reinforced Concrete and Building Laws, then gave his report. He stated that it would necessarily be a progress report.

"The work of the committee has been done under the general direction of the American Concrete Institute," he said, "and the committee has some tests prepared on concrete columns. It was hoped that they could be completed and the results be in shape for presentation, but unfortunately they could not be worked out. Those of you who were at the New York convention will remember the program of tests that was laid out, the idea being to revise building laws. If the laws were revised it would be necessary to have some information on the behavior of concrete under load. As a result of the program that was laid out at that time, some tests were made the following year on completed structures. Two buildings were tested and were reported at the convention in Kansas City. The test data was presented in pamphlet form, no time being available for the consideration of this data, and it is still being held as a matter for consideration should the building laws as outlined be amended.

"It was expected at that time that further work along the same line would be done, but funds have not been available to carry on the work. Along that particular line it was thought that much information had been obtained upon floor construction and the paper was read before the convention and the work has been published in technical journals. At the Pittsburgh convention it was arranged that a series of column tests would be made, the columns to be built under field conditions, and that the columns should be larger than heretofore, so as to give information on actual carrying capacity of columns under load as far as we find in building. In the Number 2 Journal there is outlined one of these columns."

Mr. Lindau then read from that journal. In closing his remarks he stated that the work of organizing the tests has been undertaken by Prof. Talbot and the actual work is expected to begin next week. Prof. Slater, of the University of Ilinois, will make the reading, according to Mr. Lindau. After much discussion and favorable comment the report was received by the members.

F. C. Wight, chairman of the Committee on Nomenclature, then advised that his committee did not get down to work until December, owing to a misunderstanding as to the chairmanship, and it was decided that the report should be prepared and printed in the forthcoming number of the Journal.

President Humphrey then recognized Oliver H. Parry, of Philadelphia, who spoke briefly on the artistic treatment on concrete structures. He stated that a great deal of good can come from this gathering. He believed that the fault in the artistic treatment of buildings rests with the architects, in great part. He thought that concrete is the best adapted material to artistic qualities on account of the combination which may be had with stone and the various tints of colors. He regretted that the architect is not doing his full duty in not giving more attention to the artistic side of concrete construction.

Burtis S. Brown, consulting engineer, Boston, Mass., then read his paper entitled "Full-Sized Tests and Their Value in Concrete." He stated that the field test is one of the subdivisions in construction which has received an impetus in the last few years. "There are many advantages in this system of determining the strength of structures," he said. "It places a premium upon good workmanship, as well as good design." Mr. Brown added that no contractor should object to having his work tested.

He advocated the method in Chicago of testing the slabs to twice the full-sized load by the building department, but did not advise a test of more than twice the desired load. "If you carry the strains beyond the elastic limits the ratio does not hold," he said. "If all wooden buildings were tested to twice the desired load half of them would fall down." He advised that the tests be in charge of three investigators, one an architect, one a contractor's representative to have charge of the load on the slab, and the third a designing engineer to have charge of the general layout and to see that the observers get around in time and the load made on time. "This would make less chance of any question of the data," he said. "Zero readings," he advised, "should be taken by two men independently. Temperature conditions must be watched closely. It might be advisable to have two sets of readings. The time of the year is another consideration. Mid-winter is not the time; the best time is in the spring or fall." Mr. Brown believes that there is a great future in testing work. He believes that the reliable contractor will want the building tested to prove that he has done good work.

Pictures were then thrown on the screen illustrating tests that were made on 5¼-inch floor slabs and column heads, the description of which was of great interest to the members, who discussed it freely.

The final paper of the day was given by Prof. W. A. Slater, engineering experiment station, University of Illinois, Urbana, Ill., entitled "Tests of a Reinforced Concrete Flat Slab Floor." This was illustrated with stereopticon views of the floors in the Shredded Wheat building at Niagara Falls, N. Y., and proved to be so interesting that a motion was made and carried that the article be included in the next Journal of the American Concrete Institute.

President Humphrey then announced that the meeting was adjourned until 7:00 p. m., when the annual banquet would take place.

The Banquet.

The annual dinner of the American Concrete Institute was held at the Auditorium Hotel at 7 o'clock on Thursday evening, covers being laid for about 200 guests, and when the first course was served most of the seats were occupied. The menu, while not extremely elaborate, was most satisfying, and everybody did full justice to the good things provided. The feast was interspersed with music and songs, everyone present joining heartily in the singing. So that there would be no excuse for anyone remaining silent, a book containing "Concrete Songs" was provided by the committee in charge of the entertainment and placed before each plate. All the songs were sung to the tune of various popular airs, and the harmony which emanated from the throats of the assembled throng demonstrated the fact that the books were being made good use of.

President Richard L. Humphrey introduced Dr. Edwin Herbert Lewis, dean of Lewis Institute, Chicago, as toastmaster. Dr. Lewis was in his happiest vein and delighted the audience with some excellent stories. He said he paid a visit to the Coliseum a few days ago, and one of the earnest young men nearly induced him to buy a silo. The only use he would have for one was to keep the compositions of budding engineers in, but this was hardly worth the price of a concrete silo, so the doctor refrained from purchasing one at this time. "If there is anybody in the world trying to fix things so they won't move, you are it," Dr. Lewis said. "I suppose even now you are making up your minds to fix up things which will last forever. I think the good old adage, 'Be sure you are right and go ahead,' will have to be changed to, 'Be sure you are right and pour ahead.'

"We have been pretty fortunate in Chicago in our judges of late, and in choosing the particular judge who is with us tonight I think we have got a good man; one who is a good mixer and a good mold of manhood. I take great pleasure in presenting to you the finished product, Judge Clarence Norton Goodwin, judge of the circuit court of Cook county, Illinois."

Judge Goodwin: "I have been looking over the diners here this evening. They are happy, pleasant, care-free faces, and the thought crossed my mind of what a doleful contrast there was between them and myself. I am here utterly unprepared to say anything, and in a situation which very apparently requires me to say something. In thinking it over I have hit upon what I consider a happy expedient; I will say as little as possible, and as you have given me this time it belongs to me and I may do as I please with it. I will therefore turn it over to the toastmaster and we will thereby get a very much better result than if I attempted to utilize it myself.

"There was one thing which occurred to me while I was dining; one ray of light; one suggestion that perhaps I can talk on for a moment. It occurred to me what a splendid conference this gathering would make for the reform of the procedure by which justice is administered; what a splendid group of men this would be to sit down together and discuss our judicial situation, for instance, and determine what ought to be done with it. I am quite sure that you would take it up from an entirely different viewpoint from that by which it has been taken up by any preceding conference."

Judge Goodwin then went on to talk about the law's delays and how they could be remedied. He also touched upon the difficulties which the judges work under. In conclusion he said: "I think all I have said brings us to the conclusion reached by a gentleman of considerable force. When Peter the Great was visiting in England, they wanted to show him the place where parliament met, particularly the House of Commons. He was afraid to go into the galleries, so they took him up and let him look down through a hole in the ceiling. The gentlemen were carrying on their business with considerable warmth, and Peter the Great asked who they were, and the reply was that most of them were lawyers. 'Well,' he said, 'there is only one in Russia, and I intend to hang him as soon as I get home.'"

Toastmaster Lewis next introduced the Rev. James Samuel Stone, D.D., rector of St. James Episcopal Church, Chicago. Dr. Lewis said, in part: "We have had a man of the law speaking, and I know it is part of a lawyer's duty to cement a man to his property, or separate it. Then there is a man who tries to cement the soul and body together. When your toastmaster talked about church unity, I thought how difficult it was to get men to see the same thing from the same point of view. It would be a most uninteresting world if all people talked and acted alike. I love to hear a man say he differs with me, and who has got convictions, and is able to speak out of the judgment of his mind and the warmth of his heart. Now that has nothing to do with concrete.

"When I think of what the possibilities are, and when I realize what you can do and are going to do in the construction of roads, the erection of great buildings and churches, I realize there are great forces among men, forces which are going to make this age one of the most remarkable in history. Just as the electric light and wireless have made themselves a realization, so will concrete make itself felt."

Dr. Stone referred briefly to the war in Mexico, and went on to say that he hopes the day will soon come when we shall hear that peace again reigns and that Mexico is once more a sister republic. In conclusion, he remarked: "I realize that this great human heart of ours, whatever the color, is ever the same in all ages, loving wife, loving friend, and true to itself; that this is a permanent factor with which we have to deal. That this is after all the concrete thing—that humanity itself is the noblest and greatest concrete. Look at the United States, the land we all love. It seems to me that one of the greatest things of history is that two great nations, one on one side of the Atlantic and the other on the other, are the great salvation of humanity, amalgamated, and with the concrete of the English people coming into this great republic of ours there comes the many streams pouring into this great country of ours, and they are gradually forming a concrete that will go to the building of one of the mightiest nations that the world has ever known, or could ever dream of. We are all concrete builders; every time a man adds a noble thought or does a noble deed, whether mechanical or of his own volition, he is adding to the concrete, and in religion that will make the concrete withstand time itself, so that these United States of America, a concrete land, a concrete people, will be the home of justice, the asylum for those who are oppressed and weak, the great uplifter of humanity! I want to thank you for letting me tell you that story."

Dr. Henry Baird Favill, chairman of the council on health and public instruction, American Medical Association, Chicago, was the last speaker called on by the toastmaster. Dr. Favill spoke very entertainingly on the subject of the field of preventive medicine, and stated that far-reaching results affecting the wealth of the nations arising out of these fundamental medical discoveries, had been obtained. He cited the case of Pasteur as a benefactor to the human race by solving problems of the germ cause of disease. Dr. Favill said that the men who have a knowledge of cement in this country are doing a wonderful thing for that fundamental, but what you are doing for concrete the average business man does not know at all what he owes to medical thought and achievement, or what goes on in the laboratory. "The great beneficences of human affairs have originated in the minds of medical research men," Dr. Favill said. "In the varied contacts that you have with affairs, in the varied opportunities you have by your voice and influence on the human affairs, don't fail to so realize the facts that I have tried to present to you, that you will fail to see an opportunity to insist upon a value of the scientific medical biological research man in our educational system."

President Humphrey: It has been my pleasing duty to introduce the toastmaster which led to this array of subjects, and I think you will all join me in an expression of thanks to the speakers.

A vote of thanks to the speakers was passed unanimously.

Friday's Session.

Friday morning's session of the convention of the American Concrete Institute began promptly at 9:00 o'clock. It was evident that the members were somewhat fatigued with the weight of the studies which had been carried on throughout the week, for this convention was notable in that each of the delegates took a decided interest in all the information that had been given out and freely discussed the papers read and the addresses given. And, too, the attendance was somewhat smaller than the preceding day because of the nearness of the week's end, many of them finding it necessary to get back to their respective places of business.

The Sectional Meeting on Concrete Materials and

HAPPY, PLEASANT, CARE-FREE FACES AT THE ANNUAL "ROUND-UP" OF THE AMERICAN CONCRETE INSTITUTE, HELD AT THE AUDITORIUM HOTEL, CHICAGO, FEBRUARY 19, 1914.

denly ordered to Honolulu for a sojourn of three months, and therefore would be unable to appear.

P. H. Bates, chemist, Bureau of Standards, Pittsburgh, Pa., was next introduced, and delivered a paper on "The Properties of Portland Cement Containing a High Percentage of Magnesia." Mr. Bates stated that the cements used in the tests were manufactured in the Bureau of Standards. "We started with a raw mixture of clay and limestone and later replaced the limestone with dolomite," said Mr. Bates, "and the clinker was just a little short of 19 per cent of Magnesia and 24 per cent of lime. We wished to combine the magnesia with the silica or alumina to find out how it affected the cement." Mr. Bates also added that concrete could be made of cement containing 10 per cent of magnesia without showing cracks. "The old standards were taken from the minority report of the German Portland Cement Manufacturers' Association, known as the Dieckerhoff test." Later in his talk Mr. Bates stated that it had been found magnesia could be contained without any new compounds. "We did not find any new compounds," he said, "until we reached nine and one-half per cent magnesia. We also found that the gravity was not changed. The harder you burn cement the lower the gravity becomes. Higher-burned cement gains a very quick initial and a slow final set. High-magnesia cement, if unsound, is due to free lime and not to magnesia. Cement containing magnesia should stand up better in sea water than one low in magnesia. As the magnesia increased we got a decided difference in the appearance of the clinker."

"Combination of Reinforcement and Forms in Concrete Construction" was the title of the next paper, President Humphrey explaining that T. W. Murray, manager of the Trussed Concrete Steel Co., of Detroit, Mich., was unable to be present and that his paper would be read by Mr. Ogden. "Reinforcement today provides for all strains, compression and continuity, etc. We first introduced reinforced hollow tile, later substituted steel floor tiles." Mr. Ogden talked about expanded metal for monolithic construction, saying that its thinness added considerably to the size of a room. He stated that the development of this type of expanded metal was such that there are now three distinct types manufactured. Pictures were then thrown on the screen showing the complicated machinery which manufactured the expanded metal. Mr. Ogden explained in some detail the process of its manufacture. Pictures of many examples of reinforcement work were shown, among the most notable being those of Mexican structures which had undergone a seige of cannon, showing the remarkable manner in which the buildings stood up under the fierce bombardment.

President Humphrey then stated that L. C. Wason, president of the Aberthaw Construction Co., would give a few remarks regarding some experiments he had made on the action of sea water on concrete. "The tests were made with a normal Portland cement," said Mr. Wason. "The first test was a 1-2-3 mixture, dry, medium and wet; the second a 1-2-4 mixture, dry, medium and wet, and the third was a 1-3-6 mixture, dry, medium and wet. The results were as follows: The first specimen broke in the middle; the second was very porous, so that water could be poured through it; the third, or very wet mixture, was in good condition generally. The specimens were left in the water four years, and indicate that the density of the concrete, as determined by the amount of water, was not nearly as good as the specimen which was wet. Mr. Wason stated that he believed it too early to draw any positive conclusion from these tests. He thought the action probably 19-20 mechanical and 1-20 chemical.

C. D. MacArthur, chief engineer of the Blain Steel Construction Co., then read a very interesting paper on "Steel Forms in Concrete Construction." Mr. MacArthur said that it is the duty of contractors to look into the most economical methods of construction. He believed that some work did not require special forms and also stated that he did not deem steel forms necessary in house building, because he did not think the character of a residence justified the use of form construction of any kind. A number of stereopticon views were shown of forms used in sewer, canal and other construction, explaining and giving the cost data of handling the forms.

L. C. Wason was then called upon to deliver his paper on "The Problems of the Contractor." Mr. Wason stated that as the hour was growing late, and owing to the fact that the paper had previously been published, he would quote only a few paragraphs of the same, and, regardless of the late hour and the busy day which the delegates had put in, it was found to be quite helpful in its suggestions.

The meeting then adjourned until 10:00 a. m. Thursday morning.

Thursday's Session.

Thursday's session of the convention of the American Concrete Institute was called to order by President Humphrey at about 9:30 a. m., the annual report of the board of directors being the first order of the day and was delivered by Secretary Edward E. Krauss, being in part as follows:

"Since the last convention the board has held three meetings. Seventy-four new members have been added, with thirty-five dropping out, making the total membership 892." Mr. Krauss then read the report of the treasurer showing the finances to be in the usual good condition, but stated that the publication of new data would mean an increased expense which would have to be met by appropriation from the membership. He advocated the continuation of the publication of the monthly journal and stated that the proceedings of the Kansas City convention would be mailed in March, those of the Pittsburgh convention now being published in the monthly journal.

Mr. Krauss added that a series of tests of columns 20 inches in diameter and 12 feet long were being carried on. He also dwelt for a short time on the changing of the name of the association from "National Association of Cement Users" to its present title, "American Concrete Institute." He stated that it was the policy of the association to limit the number of papers that were to be read at the convention to as few as possible, but that on this occasion it had been found practicable to increase the number somewhat. It was desirable to have as many of the listed papers read as time would permit, but that the encouragement of discussion was of much benefit to the members and brought out much information of great value that might not otherwise come up. The report was found entirely satisfactory to the members, who voted to accept it in full.

The committee on nominations then gave its report, the following officers being nominated, election to be certified by letter ballot of the members:

President, Richard L. Humphrey.
Vice president, L. C. Wasson.
Treasurer, Robt. A. Cummings.
Director for the second district, Edw. D. Boyer, of New York.
Director for the third district, Robt. W. Leslie, of Philadelphia.
Director for the sixth district, John D. Leonard, of San Francisco.

These proposed new officers were voted satisfactory by the members.

President Humphrey, in thanking the members for the renomination, said that he appreciated the high honor that had been conferred on him for the tenth time, and that he had lent his best efforts and continued to upbuild the Institute. He stated that he could not accept a renomination next year, and that after serving this terms of office he should not be eligible for re-election. He hoped during the coming year to bring the association to where it would come out of its difficulties.

George C. Walters, of Atlanta, Ga., invited the association to hold its next meeting in that city, stating that the association had been responsible for the great development of the concrete industry in his section of the country and that he represented the governor, the mayor and the chamber of commerce.

Mr. Mathews, of San Francisco, then made an appeal to the members to hold the next meeting in his city, during the time of the San Francisco Exposition. He pointed out the benefits to the association, both from a business and pleasure standpoint. He stated that a cement show was being organized there and that special low rates would be granted by all railroads.

President Humphrey thanked Mr. Walters and Mr. Mathews for their kind offers and said that the matter would be referred to the board of directors.

The report of the committee on the revision of the by-laws was then heard. The by-laws of the Institute were published in Number 2 of the Journal, under date of December, 1913. These changes suggested by the committee were approved and adopted and will be published in due time in the Journal.

Alfred E. Lindau, chairman of the Committee on Reinforced Concrete and Building Laws, then gave his report. He stated that it would necessarily be a progress report.

"The work of the committee has been done under the general direction of the American Concrete Institute," he said, "and the committee has some tests prepared on concrete columns. It was hoped that they could be completed and the results be in shape for presentation, but unfortunately they could not be worked out. Those of you who were at the New York convention will remember the program of tests that was laid out, the idea being to revise building laws. If the laws were revised it would be necessary to have some information on the behavior of concrete under load. As a result of the program that was laid out at that time, some tests were made the following year on completed structures. Two buildings were tested and were reported at the convention in Kansas City. The test data was presented in pamphlet form, no time being available for the consideration of this data, and it is still being held as a matter for consideration should the building laws as outlined be amended.

"It was expected at that time that further work along the same line would be done, but funds have not been available to carry on the work. Along that particular line it was thought that much information had been obtained upon floor construction and the paper was read before the convention and the work has been published in technical journals. At the Pittsburgh convention it was arranged that a series of column tests would be made, the columns to be built under field conditions, and that the columns should be larger than heretofore, so as to give information on actual carrying capacity of columns under load as far as we find in building. In the Number 2 Journal there is outlined one of these columns."

Mr. Lindau then read from that journal. In closing his remarks he stated that the work of organizing the tests has been undertaken by Prof. Talbot and the actual work is expected to begin next week. Prof. Slater, of the University of Ilinois, will make the reading, according to Mr. Lindau. After much discussion and favorable comment the report was received by the members.

F. C. Wight, chairman of the Committee on Nomenclature, then advised that his committee did not get down to work until December, owing to a misunderstanding as to the chairmanship, and it was decided that the report should be prepared and printed in the forthcoming number of the Journal.

President Humphrey then recognized Oliver H. Parry, of Philadelphia, who spoke briefly on the artistic treatment on concrete structures. He stated that a great deal of good can come from this gathering. He believed that the fault in the artistic treatment of buildings rests with the architects, in great part. He thought that concrete is the best adapted material to artistic qualities on account of the combination which may be had with stone and the various tints of colors. He regretted that the architect is not doing his full duty in not giving more attention to the artistic side of concrete construction.

Burtis S. Brown, consulting engineer, Boston, Mass., then read his paper entitled "Full-Sized Tests and Their Value in Concrete." He stated that the field test is one of the subdivisions in construction which has received an impetus in the last few years. "There are many advantages in this system of determining the strength of structures," he said. "It places a premium upon good workmanship, as well as good design." Mr. Brown added that no contractor should object to having his work tested.

He advocated the method in Chicago of testing the slabs to twice the full-sized load by the building department, but did not advise a test of more than twice the desired load. "If you carry the strains beyond the elastic limits the ratio does not hold," he said. "If all wooden buildings were tested to twice the desired load half of them would fall down." He advised that the tests be in charge of three investigators, one an architect, one a contractor's representative to have charge of the load on the slab, and the third a designing engineer to have charge of the general layout and to see that the observers get around in time and the load made on time. "This would make less chance of any question of the data," he said. "Zero readings," he advised, "should be taken by two men independently. Temperature conditions must be watched closely. It might be advisable to have two sets of readings. The time of the year is another consideration. Mid-winter is not the time; the best time is in the spring or fall." Mr. Brown believes that there is a great future in testing work. He believes that the reliable contractor will want the building tested to prove that he has done good work.

Pictures were then thrown on the screen illustrating tests that were made on 5¼-inch floor slabs and column heads, the description of which was of great interest to the members, who discussed it freely.

The final paper of the day was given by Prof. W. A. Slater, engineering experiment station, University of Illinois, Urbana, Ill., entitled "Tests of a Reinforced Concrete Flat Slab Floor." This was illustrated with stereopticon views of the floors in the Shredded Wheat building at Niagara Falls, N. Y., and proved to be so interesting that a motion was made and carried that the article be included in the next Journal of the American Concrete Institute.

President Humphrey then announced that the meeting was adjourned until 7:00 p. m., when the annual banquet would take place.

The Banquet.

The annual dinner of the American Concrete Institute was held at the Auditorium Hotel at 7 o'clock on Thursday evening, covers being laid for about 200 guests, and when the first course was served most of the seats were occupied. The menu, while not extremely elaborate, was most satisfying, and everybody did full justice to the good things provided. The feast was interspersed with music and songs, everyone present joining heartily in the singing. So that there would be no excuse for anyone remaining silent, a book containing "Concrete Songs" was provided by the committee in charge of the entertainment and placed before each plate. All the songs were sung to the tune of various popular airs, and the harmony which emanated from the throats of the assembled throng demonstrated the fact that the books were being made good use of.

President Richard L. Humphrey introduced Dr. Edwin Herbert Lewis, dean of Lewis Institute, Chicago, as toastmaster. Dr. Lewis was in his happiest vein and delighted the audience with some excellent stories. He said he paid a visit to the Coliseum a few days ago, and one of the earnest young men nearly induced him to buy a silo. The only use he would have for one was to keep the compositions of budding engineers in, but this was hardly worth the price of a concrete silo, so the doctor refrained from purchasing one at this time. "If there is anybody in the world trying to fix things so they won't move, you are it," Dr. Lewis said. "I suppose even now you are making up your minds to fix up things which will last forever. I think the good old adage, 'Be sure you are right and go ahead,' will have to be changed to, 'Be sure you are right and pour ahead.'

"We have been pretty fortunate in Chicago in our judges of late, and in choosing the particular judge who is with us tonight I think we have got a good man; one who is a good mixer and a good mold of manhood. I take great pleasure in presenting to you the finished product, Judge Clarence Norton Goodwin, judge of the circuit court of Cook county, Illinois."

Judge Goodwin: "I have been looking over the diners here this evening. They are happy, pleasant, care-free faces, and the thought crossed my mind of what a doleful contrast there was between them and myself. I am here utterly unprepared to say anything, and in a situation which very apparently requires me to say something. In thinking it over I have hit upon what I consider a happy expedient; I will say as little as possible, and as you have given me this time it belongs to me and I may do as I please with it. I will therefore turn it over to the toastmaster and we will thereby get a very much better result than if I attempted to utilize it myself.

"There was one thing which occurred to me while I was dining; one ray of light; one suggestion that perhaps I can talk on for a moment. It occurred to me what a splendid conference this gathering would make for the reform of the procedure by which justice is administered; what a splendid group of men this would be to sit down together and discuss our judicial situation, for instance, and determine what ought to be done with it. I am quite sure that you would take it up from an entirely different viewpoint from that by which it has been taken up by any preceding conference."

Judge Goodwin then went on to talk about the law's delays and how they could be remedied. He also touched upon the difficulties which the judges work under. In conclusion he said: "I think all I have said brings us to the conclusion reached by a gentleman of considerable force. When Peter the Great was visiting in England, they wanted to show him the place where parliament met, particularly the House of Commons. He was afraid to go into the galleries, so they took him up and let him look down through a hole in the ceiling. The gentlemen were carrying on their business with considerable warmth, and Peter the Great asked who they were, and the reply was that most of them were lawyers. 'Well,' he said, 'there is only one in Russia, and I intend to hang him as soon as I get home.'"

Toastmaster Lewis next introduced the Rev. James Samuel Stone, D.D., rector of St. James Episcopal Church, Chicago. Dr. Lewis said, in part: "We have had a man of the law speaking, and I know it is part of a lawyer's duty to cement a man to his property, or separate it. Then there is a man who tries to cement the soul and body together. When your toastmaster talked about church unity, I thought how difficult it was to get men to see the same thing from the same point of view. It would be a most uninteresting world if all people talked and acted alike. I love to hear a man say he differs with me, and who has got convictions, and is able to speak out of the judgment of his mind and the warmth of his heart. Now that has nothing to do with concrete.

"When I think of what the possibilities are, and when I realize what you can do and are going to do in the construction of roads, the erection of great buildings and churches, I realize there are great forces among men, forces which are going to make this age one of the most remarkable in history. Just as the electric light and wireless have made themselves a realization, so will concrete make itself felt."

Dr. Stone referred briefly to the war in Mexico, and went on to say that he hopes the day will soon come when we shall hear that peace again reigns and that Mexico is once more a sister republic. In conclusion, he remarked: "I realize that this great human heart of ours, whatever the color, is ever the same in all ages, loving wife, loving friend, and true to itself; that this is a permanent factor with which we have to deal. That this is after all the concrete thing—that humanity itself is the noblest and greatest concrete. Look at the United States, the land we all love. It seems to me that one of the greatest things of history is that two great nations, one on one side of the Atlantic and the other on the other, are the great salvation of humanity, amalgamated, and with the concrete of the English people coming into this great republic of ours there comes the many streams pouring into this great country of ours, and they are gradually forming a concrete that will go to the building of one of the mightiest nations that the world has ever known, or could ever dream of. We are all concrete builders; every time a man adds a noble thought or does a noble deed, whether mechanical or of his own volition, he is adding to the concrete, and in religion that will make the concrete withstand time itself, so that these United States of America, a concrete land, a concrete people, will be the home of justice, the asylum for those who are oppressed and weak, the great uplifter of humanity! I want to thank you for letting me tell you that story."

Dr. Henry Baird Favill, chairman of the council on health and public instruction, American Medical Association, Chicago, was the last speaker called on by the toastmaster. Dr. Favill spoke very entertainingly on the subject of the field of preventive medicine, and stated that far-reaching results affecting the wealth of the nations arising out of these fundamental medical discoveries, had been obtained. He cited the case of Pasteur as a benefactor to the human race by solving problems of the germ cause of disease. Dr. Favill said that the men who have a knowledge of cement in this country are doing a wonderful thing for that fundamental, but what you are doing for concrete the average business man does not know at all what he owes to medical thought and achievement, or what goes on in the laboratory. "The great beneficences of human affairs have originated in the minds of medical research men," Dr. Favill said. "In the varied contacts that you have with affairs, in the varied opportunities you have by your voice and influence on the human affairs, don't fail to so realize the facts that I have tried to present to you, that you will fail to see an opportunity to insist upon a value of the scientific medical biological research man in our educational system."

President Humphrey: It has been my pleasing duty to introduce the toastmaster which led to this array of subjects, and I think you will all join me in an expression of thanks to the speakers.

A vote of thanks to the speakers was passed unanimously.

Friday's Session.

Friday morning's session of the convention of the American Concrete Institute began promptly at 9:00 o'clock. It was evident that the members were somewhat fatigued with the weight of the studies which had been carried on throughout the week, for this convention was notable in that each of the delegates took a decided interest in all the information that had been given out and freely discussed the papers read and the addresses given. And, too, the attendance was somewhat smaller than the preceding day because of the nearness of the week's end, many of them finding it necessary to get back to their respective places of business.

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Surface Treatment was the first order of business of the day.

This was followed by the report of the Committee on Specifications and Methods of Tests for Concrete Materials. Sanford E. Thompson was chairman of this committee, but as he was absent from the session the report was read by Prof. Talbot and will be published in due time for the convenience of the members.

"Some Comparative Corrosion Tests of Plastered Metal Lath—A Progress Report," was the next paper to be read. The address was given by H. B. McMaster, of the Associated Metal Lath Manufacturers, in the absence of J. C. Pearson, assistant physicist, Bureau of Standards, Washington, D. C.

Cloyd M. Chapman, engineer of tests, Westinghouse, Church, Kerr & Company, New York, N. Y., then delivered a paper entitled "Data on Lime Putty and Cream of Lime," illustrated with stereopticon views. The reading of this paper was followed by a great deal of discussion among the members.

The report of the Committee on Treatment of Concrete Surfaces Presenting Revised Specifications for Stucco, Leonard C. Wason, chairman, was the last order of the morning session.

Friday Afternoon's Session.

President Humphrey called the meeting to order at 2:00 o'clock and the discussion left over from the morning session on the subject of revised specifications for stucco was continued.

Mr. Chapman stated that these specifications were very important, and he preferred to have the proposition referred back to the committee, with instructions to get such light as it can and compile the data, the idea being to get the stucco contractors to answer certain questions pertaining to the matter and submit them to the association.

President Humphrey suggested that the matter be thrashed out and incorporated in the Journal of the Institute.

Mr. Chapman stated that the committee had been requested to formulate specifications for stucco on wood lath. The matter was taken up by circular with over three hundred members of the Institute, asking information chiefly as to the names and addresses of contractors who were recognized as proficient in the stucco line. As a result fifty-five names of contractors were secured. The recommendations presented were based on the practice of a comparative few contractors, but they are men who are looked upon as first-class and conversant with the subject.

Various methods of laying stucco on wood lath were outlined.

Mr. Boyer suggested that the question of stucco on wood lath be further investigated, and that the data gotten up to date by the committee be printed as a specification only.

Mr. Boyer's suggestion was agreed to, and the committee was discontinued with the thanks of the Institute for the work they had done.

The next item on the program was a paper by G. H. Dougherty, of the D. and A. Post Mold Co., Three Rivers, Mich., on the subject of "Post Molds and Manufacture of Reinforced Concrete Fence Posts." Mr. Dougherty pointed out that the concrete posts are being used very largely by railroads, farmers and large corporations, and described in detail the manufacture of concrete fence posts.

A. M. Smith, manager of the Ohio Post Mold Co., Toledo, Ohio, was the next speaker, the subject of his address being "The Concrete Fence Post." The speaker stated that concrete fence posts ceased to be an experiment a good many years ago, and are now a real live commercial proposition.

Mr. Smith said in part: "The real problem is the adaptation to good general types for specific purposes. The main features to be taken into consideration in the manufacture of concrete fence posts are cost, selection and preparation. The question of mixture is one over which there may be some argument, but the principal thing to bear in mind is to use one part cement, one part sand and one part gravel or crushed rock. The cost is about 15c a post, and the labor cost on a post will not be less than 3c. Molds have been made for a number of years by farmers, and they have been widely distributed throughout the country. We have had few complaints. We teach our buyers not to use tamped concrete, as the slush mixture is better in every way for the purpose of manufacturing fence posts. We tried in every way to convince the makers of concrete posts that the aging of this material is a chemical action which requires more time than the average man would imagine. Posts should not be exposed to the air, and should be kept in an upright position for thirty days and sprinkled with water.

"We are doing our best to add our share to the general education of the masses in the use of the concrete fence post, and it is being carried on with great satisfaction. The United States Department of Agriculture has carried on experiments with the concrete post and a large number of the States of the Union have given it a cordial welcome. Modern methods of making cement have reduced the price of this material, the cost of transportation being the main factor in the price. The great expansion of the industry for the next few years will be found in the use of the concrete fence posts."

President Humphrey read a report submitted by W. C. Cushing, chief engineer Maintenance of Way, Pennsylvania Lines West of Pittsburgh, who stated that there are 20,000 concrete posts which have been in service for two years on ten divisions of the line.

The Pennsylvania Lines East of Pittsburgh submitted a blueprint of fence posts, and they are working up a tentative standard for same. They state that the approximate cost of the wooden post is 25c each, and they are of the opinion that concrete posts will be cheaper in the end. They have designed some concrete posts to carry commercial wires.

A general discussion on the subject of concrete fence posts was then indulged in, and Mr. Atwood suggested that standard specifications be adopted by the Institute covering the subject.

President Humphrey: I think the report of the Pennsylvania railroad on the concrete posts is going to give us the data we need, but I would like to have those who are interested in this matter send any information they may have on cement posts to C. K. Arp, chairman of the Committee on Building Blocks and Concrete Products, so that the data gathered may be submitted to the Institute at a later date.

In the absence of T. H. Hugh Boorman, consulting engineer, New York, his paper on "Sanitary Surfaces for Concrete Floors," was read by the secretary. The paper showed that Mr. Boorman had given considerable thought to the subject, and as a result it proved most interesting to the members.

The report of the Committee on Resolutions was then submitted and approved.

Resolutions.

No resolution having been presented to the Institute and referred to this committee, the committee offers the following:

RESOLVED.—That the thanks of this association are hereby tendered the officials of Chicago and the representatives of the local architectural engineering and concrete interests for their hearty welcome; to the press and citizens of Chicago for their co-operation in making this, the tenth annual convention, a notable success and to the guests of the Association for their assistance in this success by the contribution of their interesting and valuable papers.

RESOLVED.—That the thanks of this association are hereby tendered to the members who have aided by the representation of papers, to the several committees whose efforts have added this tenth meeting to the series of successful conventions; to the technical press whose recognition of and assistance in the work of this organization is gratefully acknowledged; and to its various officers but particularly to its president, Richard L. Humphrey, for their untiring devotion to the interest and welfare of this association. The Institute also records its appreciation of the services of its retiring treasurer, Henry H. Quimby, and the retiring directors, Charles Derleth, Jr., and Ernest L. Ransome.

RESOLVED.—That the Institute expresses its appreciation of the fact that the officers and board of direction have made it possible to begin the publication of a monthly journal for the Institute, and recognizes that such a journal can be of great value to the members and to the industry at large.

Joshua L. Miner, Chairman,
E. S. Hanson,
A. J. Maynard,
A. A. Slater,
H. B. McMaster.

President Humphrey: We have completed all the business slated for this tenth annual convention, which ends a decade in our history, and I hope from now on that the progress of the American Concrete Institute will be rapid and I believe it will be. In closing I want to say that I am firmly of the opinion that the next decade will be one of the most profitable in its history.

The convention then adjourned sine die.

Registered Attendance.

1. Richard L. Humphrey, Philadelphia, Auditorium.
2. Arthur N. Talbot, Urbana, Ill.
3. L. C. Wason, Boston, Mass., Auditorium.
4. B. F. Affleck, Chicago, Ill.
5. W. P. Anderson, Cincinnati.
6. E. D. Boyer, New York, Congress.
7. W. L. Church.
8. Charles Derleth, Jr., Berkeley, Calif.
9. E. L. Ransome, Dunnellen, N. J.
10. H. H. Quimby, Philadelphia, Pa.
11. E. E. Krauss, Philadelphia, Pa.
12. C. K. Arp, Chicago, Ill.
13. J. P. H. Perry, New York.
14. F. C. Wight, New York.
15. A. E. Lindau, Chicago, Ill.
16. Willis Whited, Harrisburg, Pa.
17. C. W. Boynton, Chicago, Ill.
18. S. E. Thompson, Newton Highlands, Mass.
19. A. V. Lester, Dayton, Ohio.
20. Robt. S. Low, Ottawa, Canada, Auditorium.
21. R. J. Wig, Washington, D. C.
22. David Barry, Ottawa, Canada, Auditorium.
23. J. L. Miner, New York, Congress Annex.
24. H. S. Doyle, Chicago.
26. H. M. Scott, Chicago.
27. R. T. Miler, Chicago.
28. Arthur J. Maynard, State Farm, Mass.
29. H. H. Ward, New York, La Salle.
30. E. S. Larned, Boston, Mass., Congress.
31. Allen Brett, Detroit, New Southern.
32. J. W. Barndt, Garnett, Kan., New Southern.
33. Robt. F. Hall, Chicago, Ill.
34. B. S. Pease, Chicago.
35. B. H. Rader, Pittsburgh, Pa., Congress Annex.
36. Harry A. Taylor, Jackson, Mich., Sherman.
37. Lewis R. Ferguson, Philadelphia, Pa., Blackstone.
38. T. H. Boorman, New York, Auditorium.
39. H. B. Rackle, Cleveland, Ohio, Auditorium.
40. Ernest E. Rackle, Cleveland, Ohio, Auditorium.
41. E. S. Hanson, Chicago, Auditorium.
42. L. J. Mensch, Chicago.
43. James A. Higgs, Jr., Erlanger, Ky., New Southern.
44. E. L. Powers, New York, La Salle.
45. Wm. M. Kinney, Pittsburgh, Pa.
46. Frank Whipperman, Omaha, Neb., Kaiserhof.
47. H. D. Kerr, New York, Congress.
48. Warren Williams, Coon Rapids, Iowa.
49. Jos. H. Chubb, Chicago.
50. T. H. Skinner, Oneida, N. Y., Chicago Athletic Club.
51. John E. Freeman, Chicago, Ill.
52. Percy H. Wilson, Philadelphia, Pa., Blackstone.
53. K. H. Talbot, Pittsburgh, Pa.
54. Blaine S. Smith, Chicago.
55. Chas. P. Light, Washington, D. C.
56. N. G. DeHaas, Marquette, Mich.
57. J. C. Van Doorn, Minneapolis, Minn., Congress.
58. A. E. Cline, Peekskill, New York, New Southern.
59. Fred K. Irvine, Chicago, Ill., Auditorium.
60. P. P. Comoli, Sioux City, Iowa, Brevoort.
61. D. G. Wright, Ironton, Ohio, Congress.
62. Jesse H. Libberton, Chicago.
63. P. H. Atwood, Armstrong, Iowa, Auditorium.
64. F. L. Metzger, Pittsburgh, Pa.
65. F. L. Metzger, Pittsburgh, Pa.
66. Davis Ewing, Bloomington, Ill.
67. Oliver Randolph Parry, Philadelphia, Pa.
68. J. P. Beck, Chicago, Ill.
69. N. H. Battjes, Grand Rapids, Mich.
70. Frank E. Wight, New York, N. Y.
71. Pheon H. Bates, Pittsburgh, Pa.
72. Anton S. Swensson, Silvis, Ill.
73. Addison Brannin, Aberdeen, Miss.
74. George C. Walters, Atlanta, Ga.
75. George H. Cromar, Brantford, Ontario, Canada.
76. J. E. Payne, Mansfield, Ohio.
77. R. C. Stubbs, Dallas, Texas.
78. Joe Ubbink, Port Washington, Wis.
79. E. J. Mehren, New York, N. Y.
80. N. S. Potter, Jr., Chelsea, Mich.
81. A. G. S. Johnson, Chicago, Ill.
82. Geo. D. Steele, Philadelphia, Pa.
83. W. T. Reeves, Chicago, Ill.
84. H. A. Christian, Palmerton, Pa.
85. A. A. Stade, Chicago, Ill.
86. E. J. Moors, Dallas, Texas.
87. R. W. Young, Paullina, Iowa.
88. Cloyd M. Chapman, New York, N. Y.
89. M. Wetzstein, South Bend, Ind.
90. C. Heller, San Francisco, Cal.
91. A. B. Cohen, Hoboken, N. J.
92. Albert F. Railand, Hoboken, N. J.
93. Gerson Isenberg, New York, Auditorium.
94. F. L. Williamson, Kansas City, Mo., Congress Annex.
95. Geo. Streham, New York, Auditorium.
96. M. K. Gochnauer, Appleton, Wis., Saratoga.

97. Luman Balyest, Van Wert, Ohio, Auditorium.
98. H. B. McMaster, Youngstown, Ohio, Congress Annex.
99. G. H. Dougherty, Three Rivers, Wis., New Southern.
100. J. E. Pennybacker, Washington, D. C.
101. C. E. Ulrickson, Minneapolis, Minn.
102. Wm. Fred Tubesing, Milwaukee, Wis.
103. W. A. Collings, Kansas City, Mo.
104. Geo. B. Dickman, Jackson, Mich.
105. J. E. Payne, Youngstown, Ohio, La Salle.
106. G. F. Schmidt, St. Mary's, Ohio, Brevoort.
107. Harvey Whipple, Detroit, Mich., New Southern.
108. O. D. McArthur, Pittsburgh, Pa., Blackstone.
109. Corrugated Bar Co., Chicago.
110. F. C. Wight, New York.
111. Norman D. Fraser, Chicago.
112. J. K. Horridge.
113. Hillis F. Hackedirn, Indianapolis, Ind.
114. S. N. McKay, New York, Auditorium.
115. C. O. Wright, Chicago, Ill.
116. H. W. Foote, Chicago.
118. Burtis S. Brown, Boston, Mass., Auditorium.
119. C. Louis Meyer, Omaha, Neb., Auditorium.
120. T. L. Condron, Chicago.
121. Duff A. Abrams, Urbana, Ill., Auditorium.
122. L. L. Bingham, Estherville, Iowa., Auditorium.
123. Willis A. Slater, Urbana, Ill.
124. E. B. Wilson.
125. Fred L. Harding, Chicago.
126. Eureka Machine Company, Lansing, Mich.
127. Illinois Steel Co., Chicago.
128. Knickerbocker Co., Jackson, Mich.
130. Milwaukee Concrete Mixer & Mach. Co., Milwaukee.
131. New Way Motor Co., Lansing, Mich.
133. Peerless Brick Machine Co., Minneapolis.
134. John L. Zeidler, St. Joseph, Mo.
135. Sandusky Portland Cement Co., Sandusky, Ohio.
137. Trussed Concrete Steel Co., Detroit.
138. Universal Portland Cement Co., Chicago.
140. Wabash Portland Cement Co., Detroit.
351. Frank Malmburg, Morris, Minn.
352. H. D. Mercer, New York, Congress.
353. Thurston, Cromer, New York, Congress.
354. Warren Wells, Chicago.
355. H. M. Blackburn, Chicago.
356. F. G. Pulley, Chicago.
357. A. B. Stevens, Jerome, Ida.
358. John P. Zeidler, St. Joseph, Mo.
359. C. R. Lather, Donnelly, Minn.
360. Frank Battjess, Grand Rapids, Mich.
361. B. A. Thrift, Chicago.
362. W. H. Hurley, Chicago.
363. B. S. Keyes, Chicago.
364. Geo. Gabler, Mason City, Ia.
365. A. Sugarman, Des Moines, Ia.
366. Jno. W. Winsburg, Evansville, Ind.
367. H. Helfrich, Jr., Evansville, Ind.
368. A. Bard, Terre Haute, Ind.
369. G. W. Bradshaw, Terre Haute, Ind.
370. P. G. Lindeman, Terre Haute, Ind.
371. T. S. Pabst, Chicago.
372. H. F. Battjes, Grand Rapids, Mich.
373. A. Van Dyke, Grand Rapids, Mich.
374. A. C. Cronkrite, Chicago.
375. J. C. Campbell, Chicago.
376. H. H. Morgan, Chicago.
377. C. Charles Lapeierre, Toronto, Can.
378. E. W. Watson, Chicago.
379. R. C. Angerine, Coldwater, Mich.
380. J. J. Commons, Chicago.
381. W. David Rayburn, Marquette, Mich.
382. Max Reiberg, Chicago.
383. H. H. Simmons, Chicago.
384. M. Webster, Air, Ohio.
385. F. M. Lesch, Columbus, Ohio.
386. N. Rahnsohoff, Columbus, Ohio.
387. J. Horace Lythe, Dayton, Ohio.
388. L. A. Bissonette, Chicago.
389. H. J. Kuelling, Milwaukee, Wis.
390. A. E. Robinson, Chicago.
391. A. C. Hubbard, Chicago.
392. R. I. Bathhurst, Chicago.
393. H. C. Jones, Chicago.
394. W. G. Joyce, Chicago.
395. F. L. Stone, Chicago.
396. L. B. Jackson, Chicago.
397. A. T. Brown, Chicago.
398. J. A. Gray, Chicago.
399. W. W. Deberard, Chicago.
400. J. G. Berger, Fort Branch, Ind.
401. W. D. Johnson, Waterloo, Ia.
402. J. P. Jerka, Centralia, Ill.
403.
404. E. J. Dowdall, Chicago.
405. F. N. Richardson, South Bend, Ind.
406. F. A. Marston, Ames, Iowa.
407. L. G. Pullen, Havana, Ill.
408. B. Blair, Havana, Ill.
409. Thos. Watson, Woodstock, Ontario, Canada
410. C. Moritz, Peoria, Ill.
411. H. C. Moritz, Peoria, Ill.
412. E. H. Defebaugh, Chicago, Ill.
413. J. Cromar, Bradford, Ontario.
414. N. Franks, Chicago.
415. Frank Malmberg, Morris, Minn.
416. T. H. Dalbey.
417. F. Lusbey, Amherst, Nova Scotia.
418. D. G. Keith, Ceylon, Minn.
419. J. J. Merryman, Milford, Ia.
420.
421. H. S. Raymond, Waterloo, Iowa.
422. Chas. H. Barr, Milwaukee, Wis.
423. N. E. Buser, Mt. Morris, Ill.
424. E. Quebbeman, Chicago, Ill.
425. Valdemar Elmont, Montreal, Canada.
426. T. H. Mac Micheal, Chicago, Ill.
427. Chester H. Lehman, Chicago.
428.
429. L. T. Allison, Chicago.
430. C. O. Wright, Chicago.
431. F. A. Tobitt, Middletown, Ohio.
432. Irving Burrows, Boston.
433. C. L. Brainerd, Chicago.
434. B. W. Ranson, Minneapolis, Minn.
435. P. R. Clark, Youngstown, Ohio.
436. H. I. Glazier, Chicago.
437. A. E. Hughes, Chicago.
438. Roy M. Balyeat, Billings, Mont.
439. R. D. VanVliet, Chicago.
440. C. F. Halheld, Chicago.
441. W. H. Hanley, Chicago.
442. W. A. Slater, Urbana, Ill.
443. J. F. Woodward, Monterey, Mex.
444. R. A. Seaton, Manhattan, Kas.
445. E. N. Heim, N. Liberty, Ind.
446. Fred C. Smith.
447. Arthur R. Lord, Chicago.
448. A. Stoltz, Chicago.
449. J. W. Musham, Chicago.
450. F. Stockdale, Chicago.
451.
476. W. B. Dunning, Chicago.
477. H. Katz, Chicago.
478. A. J. Hayes, Bayden, Iowa.
479. F. L. Jaeger, Chicago.
480. E. W. Brewer, Chicago.
481. H. W. Snell.
482.
483. H. P. Letcher, Chicago.
484. D. M. Kerr, Chicago.
485. T. A. Duke, Washington, Iowa.
486. M. S. Todd, Chicago.
487. C. I. Chapin, Chicago.
488. C. H. Kraus, Fairfield, Iowa.
489. O. T. Wildman, Fairfield, Iowa.
490. R. B. Bennett, Westerville, Ohio.
491. J. H. Hamilton, Ark City, Kas.
492. Fred Spies, Graettinger, Iowa.
493. W. W. Bowe, Peru, Ind.
494. Asa Smith, Toledo, Ohio.
495. E. E. Mick, Chicago.
496. Douglas Banfield, Chicago.

MID-WEST CEMENT SHOW A SUCCESS.

Nebraska Cement Users' Association Hold Interesting Meeting in Connection With Show.

Omaha, Neb., Feb. 21, 1914.—Many interesting and extraordinary features have marked the 8th annual mid-west show held at Omaha, Neb., January 30 to February 4 as the most successful event of the cement and concrete industry ever held west of the Mississippi river. The cement show was augmented by the 9th annual convention of the Nebraska Cement Users' Association, which was held in Omaha during the week of the cement show. The meetings of the Cement Users' organization were held during the forenoons, providing ample time for members to take advantage of the cement show features in which they were directly interested.

Four thousand complimentary tickets were issued for the first night of the Cement show, and before the doors of the Auditorium closed at midnight, it was estimated that most of them had been used. Also the paid admissions were heavy, and a constant stream of spectators was kept flowing in and out of the Auditorium practically from 6 o'clock until near midnight.

President Peter Palmer said it was far the greatest first night crowd that had ever attended the Mid-West Cement show in Omaha.

The George Green band furnished music throughout the evening. The San Francisco lecturers delivered several illustrated lectures to large audiences on the great rostrum of the Auditorium. As fast as one audience departed, another entered the room to hear the lecture and see the pictures. Pictures of the Panama canal are shown and pictures of the San Francisco exposition grounds as well.

No less than seventy-five exhibitors had booths this year in the big show. Dozens of noisy machines roared and thundered during the show as they mixed concrete and pounded out cement blocks. Peter Palmer, president of the Nebraska Cement Users' Association, under whose auspices the show is given, had an excellent exhibit himself. He represented a model farm yard done in cement.

Cement Fences.

Cement fence posts were also on exhibit. Cement flower pots of artistic design stood in stately array before the eyes of the spectators. All in all, there was a greater variety at the show this year than ever before.

The illustrated lecture on the San Francisco exposition and on the Panama canal was given daily.

Convention Opens.

With over 100 Nebraska cement users in attendance, the opening session of the convention was called to order by President Peter Palmer, of Oakland, on Monday morning, February 2, with Secretary Frank Whipperman, of Omaha, also on the platform.

Mayor James C. Dahlman was scheduled to make the address of welcome, but was unable to be present on account of the city commission being in session at the time. City Attorney John A. Rine appeared as the mayor's official representative and extended Omaha's hearty welcome and best wishes to the visitors.

"Your interests are ours," he declared, and said that Omaha was proud to open her doors to the convention.

E. V. Parrish, manager of the Omaha publicity bureau, also voiced the city's welcome and emphasized the growth and importance of the cement business in Omaha and Nebraska. He stated that the 1913 cement jobbing business in the state amounted to $7,000,000, half of which was Omaha's, and he pointed out that an increase of almost 300 per cent had been made in the state's cement business during the last two years.

T. G. Northwall, of Omaha, outlined the history of the cement block industry in this city and told how it had grown from one small plant to five large factories during the course of twelve years. The handsome Havens' residence at Thirty-ninth and Dodge streets, built by John Harte and now occupied by E. C. Page, manager of the smelting works, was the first Omaha home to be built entirely of cement blocks, he said.

A technical discussion of concrete foundations for street paving, by George L. Campen, an Omaha civil engineer and paving expert, closed the day's program.

"People are like sheep in the matter of paving methods, as in other ways," he said. "Because certain modes of paving are used satisfactorily in New York City, they are sometimes adopted in this part of the country, although the climate and weather conditions make the two places unsuited for similar kinds of pavement."

Committees Named.

These committees were appointed at the business session by President Palmer:

Nominations.—Swan Larson, of South Omaha, C. E. Lowe, of St. Edward, A. J. Swanson, of Omaha.

Auditing.—W. H. De Bolt, of Beatrice; H. R. Park, of Bruning; W. B. Farris, of Albion.

Resolutions.—C. R. Judkins, of Upland; Charles Lehrack, of Lincoln; G. F. Lillie, of Fremont.

All these sessions of the convention were of equal interest and importance, and as a result of discussions on various topics the Nebraska Cement Users' Association is ready to meet every requirement in the progress of the concrete industry. The convention closed on Wednesday, February 4, with reports of various committees being read into the permanent records of the association.

CONCRETE PLANT CHANGES HANDS.

The Eau Claire Concrete Co., of Eau Claire, Wis., has purchased the plant formerly owned by Dr. Alexander Montgomery. Officers and directors were elected as follows at the recent annual meeting: President-treasurer, J. W. Ross; vice-president, H. T. Lange; secretary, R. K. Boyd; directors, H. T. Lange; R. K. Boyd, N. H. Campbell, J. M. Craemer and J. W. Ross. George M. Childs, who formerly held the office of treasurer and director, has retired from the corporation.

The firm of Monohan & Co., of Peoria, Ill., has been incorporated with capital stock of $10,000 to do general concrete construction work. The incorporators are Henry J. Monahan, W. F. Irwin and R. P. Jack.

First Concrete Roads Conference a Success

Remarkable Interest Manifested at all Sessions Indicates That the National Conference on Concrete Road Building Will Become Permanent Institution.

More than 300 representative delegates registered at the Auditorium Hotel for the National Conference on Concrete Road Building, which opened deliberations, Feb. 12 at 10:00 a. m. This was the first meeting recorded of the National Conference on Concrete Road Building and the interest manifested should by all means be an incentive for making it a permanent institution or organization. The reception and registration of delegates and visitors, and meetings of various preliminary committees were held during the forenoon. Those broad-minded men who stand sponsors for the movement which has culminated in the establishment of this conference bids well for national recognition. The purposes are manifold—and the basic principle of this Conference as an institution is typical of the present day movement for the providing of the best things necessary to the welfare of the whole nation. There are brought together at this Conference those concerned in the improvement of public highways and who are most interested in one single type of road construction—concrete. The men who are attending this Conference believe in the concrete road, its adaptability to all requirements and its superiority over all other types of road construction. They are men who have studied and developed the concrete road in various parts of the United States with a marked degree of success. They have every reason for their manifested faith in the concrete road; for the reason that their experience with, and knowledge of, this type of road construction has proved its efficiency, its small cost of maintenance, and its reasonable cost of first construction. These men know that the necessity for firm, unyielding roads under present-day traffic conditions has resulted in the wide demand on the part of the engineering profession and the public for more accurate and more scientific knowledge of the serviceability and permanency of various types of roads. The National Conference on Concrete Road Building, after concerted study of road-building problems of the last few years, can feel justified in pointing out that the subject is so large as to make knowledge of so many branches fragmentary. A scientific inquiry into the rapidly advancing field of concrete road construction, therefore, is the opportune advantage afforded by the Conference in session at the Auditorium Hotel, thus bringing to a focus the present divergent views on the best methods of design and construction, rendering the Conference of practical value to every man identified with the building of roads.

First Session, Thursday Afternoon.

Promptly at 2 o'clock S. E. Bradt, secretary of the Illinois State Highway Commission, of Springfield, Ill., called the first session of the National Conference on Concrete Road Building to order. Mr. Bradt made a few appropriate introductory remarks relative to effecting a permanent organization, in order to proceed to the routine of the meeting as embodied in the printed program, and consequently made a motion to the assembled delegates for the election of a permanent organization viva voce. On Mr. Bradt's motion the following officers were elected to preside at the Conference:

President, W. F. M. Goss, dean of the College of Engineering, University of Illinois.

Secretary, J. P. Beck, Chicago.

Vice-President, A. N. Johnson, State Highway Engineer of Illinois.

Treasurer, Ira O. Baker, Professor of Civil Engineering, University of Illinois.

The foregoing officers were thus duly elected and proceeded to the rostrum, where they accepted their duties as permanent presiding officers of the Conference. Following a few brief extemporaneous remarks by President Goss, he addressed the conference as follows:

"On behalf of your Advisory Committee, and of those officers of the Committee who have been so diligent and successful in making preparations for our gathering, I extend to you, the delegates to this the National Conference on Concrete Road Building, a most hearty welcome.

"Those who introduce a movement are often led by a certain inspiration which begets confidence in the public, which reaches a speedy and satisfactory conclusion, and which is far-seeing enough to plan intelligently for future ages as well as for their own. I believe the movement in which we are now specially interested has been thus inaugurated, for I predict that this National Conference in operation for the financing of the "good roads" ence, assembled for the purpose of discussing the principles which should control in the design and construction of a new type of roadway will exert influence upon every part of our country and will ultimately confer benefits upon all classes of people.

"This 12th day of February is one of tender and precious associations. It will hardly be possible in our country today for people to gather for any purpose without thoughts of that great man whose life has distinguished, and even hallowed this day. Helpful and inspiring thoughts they must be for any one who wishes, even in the humblest way, to work for his country—for her good name among nations, for the integrity of her government and for the welfare of her people. His own life was spent for this, and the spirit in which he conducted both small and great affairs, is the spirit which ought to control in any of our undertakings. It is

W. F. M. GOSS, CHAIRMAN NATIONAL CONFERENCE ON CONCRETE ROAD BUILDING.

significant, both in its relation to this day and to the purpose of this conference, that a proclamation has been issued by the Director of the Lincoln Highway Association, declaring its purpose to secure the construction, as a dignified, a useful and a lasting memorial to the nation's great benefactor, a Lincoln transcontinental highway, to be built in concrete.

"The problem of road construction in the United States, as it confronts society at this time, is a great issue. Those who desire immediate benefits and who fail to interpret the present situation in terms of past conditions are inclined to contrast the imperfections in the highways of our own country with the superior qualities of those of England and Continental Europe. They may even conclude that some one is to blame for our lack of progress, but basing judgment upon a large view of the situation we are not justified in entertaining any such feeling. The good roads of the old world have been built by people who live under settled conditions, or they have been developed in response to the exigencies of war. We, in this country, have only in recent years become well established in the occupancy of our territory, and the process of gaining possession of our lands has made us busy with other things. Only now are we ready to consider the means of bringing our roads to a standard which will satisfy the requirements of a modern settled community. An era of great progress is just before us. The farmer is no longer content to plod in the road; he wants a road upon which he can travel rapidly and comfortably. The man of affairs finds that business flows in stronger streams where roads are good. Cities are discovering that trade and municipal prosperity are stimulated by good roads, and railroad and navigation companies are finding that in the development of their traffic good roads serve as effective feeders. People everywhere are coming to understand that it is expensive to move loads over poor roads, and that the extra cost to the farmer resulting from their low efficiency is a tax upon the community.

"Meanwhile, the severity of the service to which the modern highway is subjected has increased enormously. The good road of a decade ago is no longer sufficient to withstand the traffic of the present day. Travel for pleasure to a considerable degree has deserted the steam railway and taken to the country highway. The horse is giving way to the motor; the light vehicle is being superseded by heavy trucks, and the speed with which all traffic moves is increasing. The public appreciation of these facts is undergoing rapid development. No one who reads or travels can question the imminence of great undertakings in the development of good roads in these United States; and, since the enterprise has been so long in abeyance the rate progress, once a real start is made, is bound to be rapid. The importance of securing a correct and otherwise satisfactory basis upon which to make the expenditures which are in prospect, is not likely to be overestimated. Rarely has the scientist, the engineer and the public official had such an opportunity for service as that which now confronts them in the necessity for solving the road-construction problems of the immediate future.

"There is available to the present-day road-builder a wide range of choice, in the selection of materials. One of these materials is concrete. In concentrating our attention upon this one material, it is not our purpose to disparage the value of any others which may properly be employed in highway construction, nor to deprecate the application of any principle of design which may properly be used in roadway construction, nor to slight or to pass judgment upon the opinion or the work of the advocate of any system of road-construction which has proved itself, or is in the process of proving itself, serviceable in the upbuilding of better roads. The attitude of the conference is one of friendliness to all good and honest work in the promotion of the general cause. But its peculiar purpose is that of considering the possibilities of concrete as a material for road-construction, and our consultations are to be for the purpose of bringing to light the demerits of the concrete road. We are to devote four formal sessions to a discussion of this single type of road-construction. We are to have presented here by those best qualified to speak, a description of the best methods of procedure in the building of such roads; we are to be told what are the really important things to be given attention in the process; we are to consider what should be the nature of specifications governing the construction of such roads; we are to have presented such information as may be available concerning the behavior of the concrete road under exposure to the weather, under the burden of traffic, and in resisting wear; we are to discuss methods to be employed in maintenance, and so far as we may be able, we are to define all the details of a new practice for the guidance of all interested. In so far as the deliberations of this conference shall result in the establishment of facts concerning these and related matters, its work will aid in supplying a basis for correct opinions concerning the future usefulness of concrete as a material for highway construction.

"It is the part of your chairman to introduce to you those whose work qualifies them to speak concerning the highly technical aspect of our general problem and especially to see that ample opportunity is granted for the presentation of reports of committees in the preparation of which many distinguished persons have given unsparingly of their time. I, therefore, find the greatest satisfaction and pleasure in introducing to you one whose work on behalf of the people of this State is well known, and who is to speak to you upon the problem of financing permanent roads."

Chairman Goss then introduced to the delegates assembled S. E. Bradt, secretary of the Illinois State Highway Commission, who addressed the meeting on the subject of "Financing Permanent Roads."

Mr. Bradt held the interest of the delegates throughout his address and reviewed the faithful work that is being conducted in Illinois on behalf of the permanent road proposition and he also

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FIRST CONCRETE ROADS CONFERENCE.

(Continued from Page 38.)

recited in detail the various plans that are now in operation for the financing of the "good roads" movement.

The secretary's announcements pertaining to the business of the Conference were read to the delegates by Robert P. Hall.

Edward M. Hagar, president of the Cement Products Exhibition Co., was then introduced to the delegates by Chairman Goss. Mr. Hagar explained that the Exhibition Company had prepared to accept the financial responsibility incurred in connection with the preliminary work of the Conference on Concrete Road Building, which included the publishing of literature and various other matters. Mr. Hagar was heartily applauded upon his appearance before the meeting.

A resolution was then presented to the meeting by S. E. Bradt, calling in detail for a permanent committee on resolutions to take action on specified matters during the progress of the Conference. The resolution as presented by Mr. Bradt was unanimously adopted and Chairman Goss named a resolutions committee as follows:

Richard L. Humphrey, President, American Concrete Institute, Chairman.

Ira O. Baker, Professor of Civil Engineering, University of Illinois, Secretary.

Dean F. E. Turneaure, College of Engineering, University of Wisconsin.

Dean A. Marston, Iowa State University.

A. N. Johnson, Illinois State Highway Engineer.

liminary meeting following the session of the con-

F. P. Wilson, City Engineer, Mason City, Iowa.

T. J. Voshell, Office of Permanent Roads, Washington, D. C.

C. W. Boynton, M. S. C. E., Chicago.

Edward H. Hines, Chairman Board of County Road Commissioners, Wayne County, Mich.

Sanford E. Thompson, Consulting Engineer, Boston.

Wm. K. Hatt, Professor of Civil Engineering,

Leonard C. Smith, Highway Commissioner, Wisconsin.

W. F. M. Goss, ex-officio.

This committee was instructed to hold a pre-

Jas. R. Marker, Ohio State Highway Engineer.

Thos. H. MacDonald, Iowa State Highway Engineer.

Oliver H. Dunlap, president of the Iowa State Supervisor's Association, Washington County, Iowa, was then introduced to the Conference and delivered an address on the question, "Can a Rural Community Afford Permanent Roads?" In opening his remarks, Mr. Dunlap answered the question in the negative, and then proceeded to enlighten the delegates on his reasons therefor.

The status of the permanent road situation and the prospects for future advancement in road building was recited by Mr. Dunlap in a very comprehensive manner. He reviewed the progress of his native state in road building for the past 20 years and declared that experience has taught the road building element of the state that while there has been a vast use of the word "permanent road" that there has likewise been a vast abuse of its application. However, the present Iowa law providing a state-wide co-operative plan for road building work has met with a measure of success that will ultimately force the state of Iowa into the front ranks of the good and permanent hard surface road construction work. Mr. Dunlap's address was most heartily applauded at its conclusion.

Edward M. Hines, of the Board of County Road Commissioners of Wayne County, Michigan, then addressed the conference on the "Concrete Road System of Wayne County, Michigan." Mr. Hines' address was perhaps the most interesting of the opening session of the Conference, as he was assisted by moving picture exhibition of the progress of the construction work in Wayne County, Michigan, which has provided the now world-famous Wayne County concrete highways.

Immediately following Mr. Hines' address and the moving picture exhibition the session was adjourned, and will re-convene this morning at 10:00 o'clock with vice-president A. H. Johnson presiding.

Friday's Session.

Promptly at 10 o'clock yesterday morning, at the Auditorium Hotel, the second session of the National Conference on Concrete Road Building was called to order by Vice-President A. N. Johnson, state highway engineer, Springfield, Ill., presiding chairman.

Upon calling the conference to order, Chairman Johnson instructed the secretary to read to the delegates assembled a communication received from Thomas H. McDonald, Iowa State Highway Engineer of Ames, Iowa, who was to address the meeting on the subject of the "Development of Concrete Roads in the United States." Secretary Beck then read a communication from Mr. McDonald, in which he stated regrets of his inability to be present, and also conveyed greetings to the Conference.

The Conference then proceeded to the routine work, as outlined by the program. Following a plea by Chairman Johnson for brevity and exactness, and adherence to subject matter of topics for discussion on committee reports, R. J. Wig, of the Bureau of Standards of the Department of Commerce of Washington, D. C., was introduced to the delegates as chairman of the Conference committee on "Contraction and Expansion of Concrete Roads." Mr. Wig's report to the Conference covered a careful study of the subject to which the committee had been assigned. He was assisted in the committee work by N. H. Tunnicliff, civil engineer of Davenport, Iowa, and W. A. McIntyre,

A. N. JOHNSON, VICE PRESIDENT OF THE CONFERENCE, WHO PRESIDED AT THE SECOND SESSION.

engineer of the Association of American Portland Cement Manufacturers, Philadelphia. With the report of this committee, Mr. Wig read into the Conference records the broad scope of the subject, and proved the care and diligence with which points most vital had been prepared for the benefit of the delegates to the Conference. He was assisted in his work of presenting the subject to the meeting by a series of stereopticon photographic views. Mr. Wig's committee report brought forth a wide and varied general discussion of the subject, each delegate participating in this discussion being limited to five minutes for expressing his views, and for the asking of pertinent questions.

The second committee report covered the subject of "Joints for Concrete Road," as presented to the delegates by W. K. Hatt, professor in charge of the school of civil engineering of Purdue University, Lafayette, Indiana. There seemed to be a variance of opinion on the subject of the practicability of the use of various types of joints for effectiveness and efficiency in the construction of a concrete road, consequently there followed an interesting discussion of the subject, as brought before the Conference by Mr. Hatt. His co-workers in preparing the report presented were Geo. W. Cooley, state engineer of St. Paul, Minn., and R. J. Wig, of the Bureau of Standards of the Department of Commerce of Washington, D. C.

"Aggregate for Concrete Roads" was the subject matter of the report of the third committee, with Sanford E. Thompson, consulting engineer of Newton Highlands, Mass., chairman. Mr. Thompson not being present at the Conference, the report was presented to the delegates by A. N. Talbot, president of the American Society for Testing Materials, Urbana, Ill. Mr. Talbot read a very interesting report of this committee, and the discussions which followed were both interesting and instructive.

Ira O. Baker, professor of civil engineering of the University of Illinois, then read a report of the committee detailed to the subject of "Preparation and Treatment of Sub-Grade for Concrete Roads." The preparation of this report as presented to the Conference included a recital of the experience of both A. H. Hirst, state highway engineer, Madison, Wis., and A. N. Johnson, state highway engineer, of Illinois, who assisted Mr. Baker in preparing the report for reading. The discussion following Mr. Baker's reading of the report brought to the floor of the Conference those most interested in the ultimate establishment of the perfect type of concrete road. The discussions in this case were based wholly on experience and knowledge gained on the committee's subject matter from that source.

The report of the committee having in charge the subject, "Reinforcement of Concrete Roads," was eliminated from the program by the absence of Chairman Thos. H. McDonald, of Ames, Iowa. Mr. McDonald's co-workers on the committee, Henry E. Riggs, of the University of Michigan, and Richard L. Humphrey, president of the American Concrete Institute, were not so prepared as to be able to submit the committee's findings.

Following an announcement of topics to come before the Conference at the afternoon's session, Chairman Johnson announced adjournment, asking that all members be present promptly at the opening of the afternoon's session, at 2 o'clock.

Friday Afternoon's Session.

The afternoon's session opened promptly at 2 o'clock, with Vice-president Ira O. Baker presiding as chairman. Mr. Baker was heartily applauded as he proceeded to the rostrum and accepted his position as presiding officer. Following a brief review of the work before the Conference, included in the afternoon's program, Chairman Baker introduced to the delegates Jas. T. Voshell, senior highway engineer of the United States Office of Public Roads, Washington, D. C. Mr. Voshell's presence at this Conference was of an importance appreciated by every delegate in attendance. He addressed the Conference as follows:

"Prior to 1911 the Office of Public Roads had no money available to pay any part of the cost of constructing experimental roads. All that it could do was to furnish engineering and laboratory aid to co-operate with such communities as were desirous of its co-operation and were willing to furnish all labor and materials. Therefore, the character of the experiments in road construction conducted by this office prior to this time were more or less controlled by the wishes of the local communities and no extensive experiments with concrete were made.

"A description of these early experiments will be of little interest except it be from an historical standpoint and as illustrative of early attempts at building concrete roads. No very definite conclusions can be drawn from them as to what may be expected of more recent work and possibly their greatest value has been to illustrate the wrong way of building concrete roads rather than the right way. For example, all of the earlier sections were built by depositing on a prepared subgrade or foundation a fairly dry mixture of concrete, which was spread and tamped in place by hand, and although great care was exercised in this work, the surfaces of the roads so built were not smooth and therefore not in a condition to best resist the wear of traffic.

"The Office of Public Roads has constructed experimental concrete roads at Ithaca, N. Y.; Washington, D. C.; in the Borough of Richmond, New York City; Bergen County, N. J.; Borough of Queens, New York City, and Montgomery County, Maryland. As already indicated, the methods employed in the first experiments have not proved satisfactory, but in order to show the evolution in the methods of construction a brief description of all of the experiments will be given.

"In 1909 Cornell University invited the office to co-operate with it to ascertain the relative value of different road building materials and of different road surfaces. The invitation was accepted and some twenty-five experimental sections of road were built, two of which were of concrete. The concrete sections were built on Forest Home Drive just west of Sibley College and have been subjected to a rather heavy automobile traffic and a considerable amount of country traffic. These sections, one 530 feet in length and the other 35 feet in length, consist of a foundation course of crushed limestone and a wearing course of concrete laid to a finished depth of 4 inches. The concrete of the 530-foot section is composed of one part of cement, two parts of sand and five parts of crushed limestone, and that of the 35-foot section is composed of one part of cement, two parts of sand, and six parts of cinders. The cement was a standard brand of Portland cement conforming to the requirements of the usual specification. The crushed limestone for the coarse aggregate was furnished in two sizes, one ranging from 1¼ to 2¼ inches and the

other from ½ to 1¼ inches. The percentages of voids were determined for each size of stone and for various mixtures of the two sizes. It was found that the percentage of voids was lowest in a mixture consisting of five parts of the larger stone and three parts of the smaller, and this mixture was used in the work. The cinders were from the university heating plant.

"All of the concrete was mixed in a stationary batch mixer, hauled about 300 feet in a dump wagon and dumped onto a mixing board, from which it was shoveled into place and leveled by steel hand rakes. It was then tamped by hand with concrete tampers until mortar flushed to the surface, after which it was rolled with a hand roller until the surface was fairly smooth. The work was done in the late fall and the concrete, as soon as it was laid, was covered with leaves to protect it from freezing. The leaves were not sprinkled and were removed after a period of fifteen days. Traffic was then permitted over the road.

"It had been planned to apply several different bituminous materials to a corresponding number of short sections of the road surface, but approaching winter and inability to secure the materials prevented the carrying out of all of these experiments except one. This experiment consisted of applying an oil-asphalt to a section of the road surface 30 feet in length. The oil-asphalt, having a penetration of 16.8 millimeters at 25° C., was heated to about 300° F., applied at the rate of one gallon per square yard and covered with stone chips. The surface of the concrete was damp and cold and the oil-asphalt did not adhere to it, and by the following spring the greater part of it had worn away.

"During the summer of 1910 different sections of the concrete surface were treated with a refined semi-asphaltic oil, an oil asphalt, a refined coal tar, and a refined water-gas tar. The results of these experiments were not very satisfactory, as the bituminous coats were soon worn through along the center of the road and at the end of a year there was not much evidence to show that they had been applied except a thin, dead mat along each side of the pavement. Since that time the entire concrete surface has been annually treated with a bituminous material.

"At the present time the concrete road does not present as good an appearance as is now obtained by modern approved methods of construction; but it has nevertheless proved serviceable and does not show excessive wear. Soon after the limestone concrete section was laid a longitudinal crack appeared about three feet from the south edge, which led to the development of a long, shallow rut. This was due to a poor foundation along this side of the road. The cinder concrete section has a smoother and generally more attractive surface than the other, but appears to have worn down about one-half inch more than the limestone concrete section. No transverse cracks have been observed in either section.

"During 1909 the Office of Public Roads conducted a series of laboratory experiments to determine the effect of mixing with ordinary concrete a residual petroleum at the rate of from three to five quarts per bag of cement. It was found that the strength of the concrete was not materially impaired; that it absorbed much less water and that the early shrinkage due to setting was much reduced. Therefore, it seemed probable that this oil-cement concrete might be better suited as a surfacing material for roads than plain concrete and the experiments conducted during 1910 and 1911 were for the purpose of giving this material a practical test.

"In co-operation with the District of Columbia, seven sections of concrete pavement, having a total length of 356 feet, were laid on Meridian Place. Six of these sections were of oil-cement concrete and one of plain concrete. A description of these experiments will not be given, as in less than a year after the pavement had been laid sixteen openings, each more than a square yard in area and distributed throughout the length of the pavement, were made for the purpose of repairing a sewer. No attempt was made to restore the pavement to its original condition and, therefore, no proper conclusions could be drawn as to the relative values of the different sections or of the value of the pavement as a whole.

"In cooperation with the Borough of Richmond, New York City, four sections of oil-cement concrete, having a total length of 444 feet, were laid at Port Richmond on that part of Innis Street lying between Morning Star Road and John Street. The sections differ from each other in that a different brand of cement was used in each, and in that each contained a different oil content. A residual petroleum oil and a cut-back petroleum residue were each used in two sections in an amount equal to ten and fifteen per cent by weight of the cement. The concrete of each section consisted of 1 barrel of cement, 8 cubic feet of sand, 16 cubic feet of crushed stone, ranging in size from ¾ to 1½ inches, and 40 or 60 pounds of oil. It was mixed in a stationary batch-mixer, wheeled to its place in the road and spread to a uniform depth of four inches, after which it was tamped until mortar flushed to the surface. The work of laying the concrete was carried on over the full width of the street and no header was set against which the day's work would be finished. Neither were transverse or longitudinal expansion joints constructed. On account of omitting the header a sloping joint was formed and as a result the pavement has worn excessively at these joints. Quite a number of longitudinal and transverse cracks have appeared and a section about 50 feet in length, near the center of the experiments, has cracked such that the cracks form a very good outline of a huge spider-web. In one section the concrete seems to be of very poor quality and a number of shallow holes have developed. Taken as a whole these sections are in poor condition.

"In cooperation with Bergen County, N. J., in June 1910, the wooden floors of two small bridges were removed and replaced with oil-cement concrete. One bridge is 25 and the other 37 feet in length. The concrete was laid 6¼ inches at the sides on iron sheathing and reinforced with chicken fence wire. The concrete was composed of one part cement, two parts of sand and four parts of crushed trap rock ranging in size from ¼ to ¾ inches, and oil to the amount of 15 per cent by weight of the cement. It was mixed by hand, shoveled into place and well tamped. When inspected in January, 1914, these floors showed little evidence of wear, and no signs of cracks. All the wear that was noticeable was that where the floors join the macadam roadway the edges are slightly rounded.

"In 1911, in cooperation with the Borough of Queens, New York City, a section of oil-cement concrete, 173 feet in length and 24 feet in width, was laid on Hillside Avenue. This avenue is the principal thoroughfare from New York City proper to Long Island, and a traffic census taken showed that an average of 1,830 vehicles pass over it each day.

"The concrete was composed of one part of cement, two parts of sand, and four parts of crushed trap rock, ranging in size from ¼ to ¾ inches and oil to the amount of 10 percent by weight of the cement. It was mixed in a stationary batch-mixer and wheeled to its place on the road in wheel-barrows, spread with rakes to a uniform thickness of four inches, and tamped until it was well compacted. To correct the slight irregularities in the surface, a mortar mixed in the proportions of 2 bags of cement, 2.5 cubic feet of sand, 7.5 cubic feet of trap rock screenings, and eight quarts of oil, was spread over the entire surface to a depth of about ½ inch and brought to a smooth surface by floating with a wooden float. On a section, about 10 feet in length, the irregularities in the surface due to tamping were corrected by casting over the surface a dry grout composed of one part cement and two parts of trap rock screenings. When traffic was admitted to the road these chips were soon thrown aside and were of little, if any, benefit. Only one expansion joint was constructed and that near the center of the section. It consisted of two courses of wood block 3 inches in width and four inches in depth laid on a sand cushion. The joints between the block and between the block and the concrete were filled with a native fluxed asphalt having a penetration of 13.0 millimeters. This expansion joint is now in as perfect condition as when it was first constructed. The edges of the concrete seem to have been perfectly protected.

"In May, 1912, this pavement was inspected and it was found that there were several small areas which showed considerable wear and the entire surface was treated with bituminous materials. A refined coal tar, an oil-asphalt and a tar-asphalt preparation were respectively applied to different sections of the surface and covered with sand or stone chips. By June, 1913, there were several small areas in the coal tar section from which the tar was missing, practically all of the tar-asphalt preparation was gone and about 50 per cent of the area of the oil-asphalt section was bare. The entire surface of the section was then cleaned off and a refined coal tar applied to one-half and a refined water-gas tar to the other half, at the rate of ½ gallon per square yard and covered with plenty of rather coarse sand. In January, 1914, the entire section was in very good condition.

"Beginning with 1911, Congress has annually appropriated money whereby the Office has been able to pay part or all of the cost of constructing sections of road for the purpose of determining the relative values of the various road building materials and the various road surfaces. Since this time the Office has undertaken and carried out more extensive experiments than had before been possible, and has also been able to dictate the nature of the experiments.

"Accordingly, in 1912, in co-operation with Montgomery County, Maryland, a series of experiments were carried out to determine the relative value of bituminous concrete, cement concrete and brick road surfaces when laid according to the best modern practice. These experimental sections, having a total length of 6,195 feet, were laid on Kensington Road beginning at Bradley Lane and extending to Chevy Chase Lake. The road has a double track street car line down the center of it and the section paved is a strip, 20.5 feet in width, on the west side of the street car line.

"All of the work was done by a contracting company which had had extensive experience in paving work, according to plans and specifications prepared by the Office of Public Raads. And while the work was well and faithfully done, no extraordinary effort was made to secure a "sandpapered" job, and the work is representative of what should be expected from a good contractor.

"The concrete section, 3,950 feet in length, was built not only to determine the relative value of concrete as a material for surfacing roads, but to determine the relative value of plain concrete and oil-cement concrete, the relative values of gravel, crushed limestone and crushed trap rock for coarse aggregate, whether or not expansion joints were necessary, and, if so, the proper spacing for them, and to determine the relative values of various bituminous materials when used for a carpet or paint coat on the concrete surface. Therefore, sections of plain and oil-cement concrete were built, on which the various bituminous materials were applied, and in which the above mentioned coarse aggregates were used, and the entire section was built without any joints excepting such construction joints as were necessary at the end of each day's work.

"In the plain concrete the materials were mixed in the proportions of one part of cement, one and three-fourths parts of sand and three parts of coarse aggregate, and sufficient water to form a concrete of a 'mushy' consistency. In the oil-cement concrete the same materials were mixed in the same proportions as in the plain concrete, and in addition a residual petroleum oil was added at the rate of five pints of oil per bag of cement. The coarse aggregates ranged in size from that passing a 1½-inch screen to that retained on a ¼-inch screen; the sand was a good concrete sand obtained from the Potomac River; and the cement was a standard brand which met the requirements of the 'U. S. Government Specifications for Portland Cement.' All of the concrete was mixed in a street paving mixer, equipped with a rotary distributing device, which deposited the concrete practically in place upon the subgrade. After the concrete had been deposited to a depth of slightly more than 6 inches, it was carefully 'struck off' with a 'strike-board.' The surface was then floated with a wooden float.

"To determine the changes in length of any section of the concrete road due to changes of temperature, brass plugs were embedded in the concrete, just before the final floating, in two rows 5 feet from the edges of the pavement; one row with a 10-foot spacing and the other with a 50-foot spacing.

"When the concrete had partially set, it was covered with paraffined canvas, which remained in place until the concrete was hard enough for the surface not to be damaged by men walking upon it. The canvas was then removed and the concrete covered with a 2-inch layer of sand or earth, which was kept wet for a period of ten days. The construction joints were made by setting a header perpendicular to the subgrade and at an angle of 80° with the center line of the road.

"When the sprinkling was discontinued and the concrete began to dry out, transverse cracks began to appear. The cracks did not appear at regular intervals, and their location was undoubtedly somewhat controlled by joints in a concrete gutter, which had previously been built along the road and against which the pavement was laid, as a majority of the cracks in the pavement appeared opposite joints in this gutter. By the time the concrete had thoroughly dried out the cracks were an average distance of about 75 feet apart. A few more cracks appeared during the following winter, since which time none have developed. At the present time the average length of the monolithic sections is 43 feet where gravel was used as a coarse aggregate, and 121 feet where crushed stone was used as a coarse aggregate. The shortest monolith is in a gravel section and is 15 feet in length, while the longest monolith is in the crushed stone section and is 220 feet in length.

"Measurements have been taken from time to time between the brass plugs, heretofore referred to, with a 10-foot strain gauge so designed as to measure accurately to 1/1000 of an inch, and it has been found that the concrete changes in length with a change of temperature in an amount quite near what would be obtained by applying the factor for the coefficient of expansion of concrete, and making a reasonable allowance for friction on the subgrade, thereby showing that the concrete contracts more at the time of setting than it expands due to subsequent rises in temperature.

"Of course, the width of the cracks changes as

changes in temperature occur, but ordinarily they appear to be from 1/16 to 1/8 inch in width. The largest cracks occur between the ends of the longest monolithic sections—those occurring at the ends of the 220-foot monolith have an average width of about ¼ inch. If these cracks were to become filled with relatively incompressible material, it is evident that compressive stresses would be developed in the concrete and would have to be taken up by the elasticity of the material. The maximum and minimum temperatures of the pavement so far observed were respectively 115° and 25° F. and the pavement shows no signs of having in the least been damaged by this variation of temperature.

"The edges of the cracks have been broken off to some extent by traffic, though not to such an amount as to be of much damage to the pavement. Those in the sections in which gravel was used as a coarse aggregate have broken off to a much greater extent than those in the crushed rock sections and all have broken off more than the edges of the construction joints in the same sections.

"Last May a refined coal tar, a refined water-gas tar preparation, a fluxed native asphalt and an oil asphalt were respectively applied to different sections of the plain and oil-cement concrete which had been laid the previous November. The surface of the concrete was thoroughly cleaned by sweeping and washing and the bituminous materials were applied hot by means of a hand distributor at the rate of one-half gallon per square yard, after which a layer of stone chips or ⅜-inch gravel was spread over the surface and rolled with a five-ton tandem roller.

"In addition to the eight sections above mentioned, bituminous materials were applied to two other sections of the concrete surface. The sections were cleaned as above described and the surface of one was painted with an emulsified native asphalt at the rate of about one-tenth gallon per square yard and the other with a light refined water-gas tar at the rate of about one-fifth gallon per square yard, after which a fluxed native asphalt was applied as above described at the rate of about one-half gallon per square yard.

"At the present time there is no apparent difference between the corresponding sections applied to the surfaces of the plain concrete and the oil-cement concrete. There is, however, a difference between the sections coated with the different bituminous materials. The sections to which the refined water-gas tar preparation was applied are in very good condition, as there are relatively few bare areas, the bituminous material is flexible, and adhesion between it and the concrete surface is good. The refined coal tar sections are in fair condition, but there are numerous small bare areas and while adhesion between the tar mat and the concrete surface is good, the tar appears to be rather 'dead.' The sections treated with the fluxed native asphalt and the oil-asphalt are in good condition on the east two-thirds of the road, but on the west third there are a number of rather large bare areas. The asphalts are flexible, but do not appear to adhere well to the concrete surface. The section to which a paint coat of light refined water-gas tar was applied is in good condition—the bituminous materials are flexible, adhesion with the concrete surface is good, and few bare areas occur. The section to which a paint coat of emulsified asphalt was applied is in a fair condition on the east half of the road, while on the west half about 40 per cent of the concrete surface is bare. Adhesion between the asphalt mat and the paint coat appears to be poor.

"A section, 50 feet in length, was treated with a crude water-gas tar at the rate of about $\frac{1}{10}$ gallon per square yard. This penetrated the concrete to such an extent that the surface at the present time has a dark brown color. There was not sufficient material to form a mat and it does not appear that this treatment is of any value in protecting the concrete surface from wear. However, it appears to be an efficient method of coloring a concrete road to obviate the more or less objectionable glare, due to the sun shining on a white concrete pavement.

"From the experiments conducted by the Office of Public Roads the following conclusions appear to be justified: The surface of the road should be smooth and uniform and to obtain this in a most practical manner rather wet concrete should be used. The coarse aggregate should be relatively small, preferably one in which all of the particles will pass a 1¼ inch screen. The concrete should be rich in cement in order that the mortar may be sufficiently strong and tough to resist to a considerable degree, the wear of traffic and to hold the particles of the coarse aggregate in place. Transverse construction joints should be constructed but expansion joints seem unnecessary. Particular attention should be given to the curing of the concrete by covering it and keeping it wet to insure that the mortar will have the essential qualifications of strength, hardness, and toughness, and in order that sufficient tensile strength may be developed, before initial shrinkage occurs to prevent cracks from being formed between joints. These conclusions are only qualitative. It is hoped, however, that these experiments may eventually furnish sufficient data to warrant, at least, a few definite quantitative conclusions."

Following a brief discussion of some interesting points brought out in Mr. Voshell's address, a motion was adopted that his paper be referred to the committee on resolutions for embodiment in the permanent records of the Conference.

Edward N. Hines, chairman of the board of county road commissioners of Wayne county, Michigan, as chairman of the sixth Conference committee, presented to the delegates that committee's report on "Methods and Costs of Repairing and Maintaining Concrete Roads." Mr. Hines was assisted in the preparation of this report by J. C. McCullough, city engineer, Fond du Lac, Wis., and F. P. Wilson, city engineer of Mason City, Iowa. This committee report was one of the most interesting of the afternoon's session, inasmuch as the facts brought to the attention of the delegates in this connection were based wholly upon the experiences of the committee members. Mr. Hines read a complete resume on the subject as gathered from official records in concrete highway construction and maintenance work of the three different communities in which the committee members are actively engaged. This report showed to the delegates that cost of maintenance of the concrete highway depended, in a measure, on varying conditions in connection with the first construction. There were a few brief discussions on the subject as presented in the committee report.

John H. Mullen of St. Paul, secretary of the Minnesota Road Makers' Association, read the report of conference committee number seven, the subject being "Shoulders for Concrete Roads." Major W. W. Crosby of Baltimore, Md., this Committee's chairman, was not present at the conference. Mr. Mullen's report, however, showed a careful study of the subject and brought before the Conference some interesting experiences based on specific application in the construction of concrete highway of the state of Minnesota. Professor Larned of Boston, lead a discussion of the topic following Mr. Mullen's report.

"Bituminous Surfaces for Concrete Roads" was presented to the Conference in the form of a report of the seventh conference committee, and this report was read by the committee's chairman, E. J. Mehren, editor of Engineering Record, New York City. The other members of this committee were Henry G. Shirley, chief engineer, State Roads Commission, Baltimore, Md., and Jas. R. Marker, State Highway Commissioner of Columbus, Ohio. The committee report was discussed from various viewpoints embodying the topic of the application of bituminous surfaces based on such experiences as the question at issue had brought to the attention of concrete road builders. In concluding the discussions on this topic it was openly declared that with proper construction of the concrete highway and sufficient application of specific principles as outlined by the engineers, whose knowledge of concrete road construction is paramount, that there should be no necessity for an application of a bituminous surface of any kind.

F. E. Turneaure, dean of the College of Engineering of the University of Wisconsin, as chairman of the ninth Conference committee, read a report on the subject of "Finishing and Curing Concrete Road Surfaces." The report of the findings of this committee, as read by Dean Turneaure, was widely discussed, and this discussion was led by Mr. Larned, of Boston, who presented some very pertinent information on the subject, as supplementary to the committee's report.

Halbert P. Gillette, editor of Engineering and Contracting, Chicago, read a report as chairman of the committee, on "Economic Methods of Handling

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and Hauling Materials for Concrete Roads.'' This subject brought forth some interesting recitals of experiences making for economy in concrete road construction, through the efficient handling and hauling of materials. Mr. Gillette, as chairman of the committee, confined his review of the subject to experiences in concrete road building work in the State of California. Supplementary to the report as read by Chairman Gillette, of the committee, the delegates were informed that the topic being open for discussion, permission had been granted to Louis H. Hellman, of the Orenstein-Arthur Koppel Co., to present a specific method of material handling with mechanical equipment. Mr. Hellman addressed the delegates on the subject of the committee report, from a viewpoint involving the application of mechanical equipment to successfully and economically transport all classes of materials involved in concrete road building work. This was one of the most interesting parts of the afternoon program, inasmuch as Mr. Hellman presented stereopticon views of the equipment referred to, and the manner in which it is applied in concrete road building work.

E. S. Larned, of Boston, in asking for permission to make a summary of the day's work of the Conference, presented a resolution as follows:

''Whereas, Concrete is of great importance in the economical construction of highways as well as of buildings, bridges, and other structures, and

''Whereas, Concrete has only recently been adopted for such extensive uses, and its success depends on many factors which are not yet fully understood; and

''Whereas, The quality of sand, gravel and stone available for successful concrete in various localities is of fundamental importance, but has not yet been extensively determined; therefore, be it

''Resolved, By the National Conference on Concrete Road Building, assembled in Chicago, February 12-14, 1914, and representing the best theoretical and practical talent in the use of concrete throughout the entire country that:

''The aggregate materials available in the various states should be examined and tested as rapidly as possible by the geological surveys, the universities, or the engineering experiment stations of the several states; and be it

''Resolved, That we urge the Governor and the legislatures of the states to provide the necessary authority and appropriations to the proper agencies within each state, for the prompt execution of this important investigation; and, be it

''Resolved, That copies of these resolutions be respectfully transmitted to the Governor and to the chairman of the legislative appropriations committees in all states in the union.''

This resolution as presented by Mr. Larned was heartily received by the delegates and on a motion it was referred to the resolutions committee for further consideration; that committee being in session at the time of its presentation.

Following this favorable action on the resolution presented by Mr. Larned, the conference adjourned to convene at 10 o'clock this morning.

Closing Session.

The fourth and closing session of the National Conference on Concrete Road Building, met promptly at 10 a. m., with a large attendance on hand. It could be noted that interest in the proceedings had increased rather than diminished, for at this session a resume of all the good work done by the convention delegates was to be given in the form of resolutions and therefore none passed up the opportunity to be present and hear, in summarized form, the vital points in connection with this mammoth attempt at gleaning knowledge and arriving at a standard method of constructing concrete roads, local conditions and available materials considered.

Chairman W. F. M. Goss presided and successfully demonstrated his remarkable ability in directing the proceedings of a body of the magnitude and importance such as was assembled in the banquet room of the Auditorium.

Leonard C. Smith, chairman of Committee 13 on ''Thickness, Crown and Grades for Concrete Roads,'' gave the report of that committee. Mr. Smith stated that it is worthy of note that wherever progress has been made in road building it has always been attended by increased cost. People demand the best form of pavement and experiments are contemplated in full size pavements to give the members the advantage of the information derived. He stated that in the Northern portions of the United States the crown should be thicker.

For lack of space we are compelled to withhold Chairman Smith's report until our next issue.

INTERSTATE CEMENT TILE MEN IN ACTION

All Sessions Marked By Big Attendance—Joint Session With American Concrete Institute Proves Mutually Advantageous.

The Interstate Cement Tile Manufacturers' Association held the first session of its annual convention at 2 p. m., Feb. 17, in Clubroom No. 1, of the Auditorium Hotel, Chicago. When President P. H. Atwood called the meeting to order the room was comfortably filled with live members of the organization.

J. J. Commons, of the Chicago Portland Cement Co., Chicago, Ill., delivered the address of welcome, which was responded to by J. J. Hammen, of Sac City, Iowa, on behalf of the association.

President Atwood's Address.

President P. H. Atwood, after greeting the members, said that a convention to be successful must have three parts: one part to introduce the subject by presenting it in a general way, bringing out the main points. Another part, being ready to ask questions on the different phases of it, and the third part, ready to give their experiences along the various lines. He went on to say that if we all do our part it will make this convention the best ever held, as regards benefits to the members. Continuing, Mr. Atwood said:

''In comparing the tile business of today with five years ago it was found that not one-half as many plants are in business now as there were then. The tile business has gotten by the $5,000 and $10,000 plants and has advanced to $25,000 and $75,000, and another five years will likely see double the amount of capital required for the more successful plants.''

President Atwood touched upon the question of buying the best machinery for the manufacture of concrete tile. He stated that the Iowa Drainage Association has adopted tentative specifications for strength and absorption of drain tile, and intimated that business in the future will be secured by the plants that follow such specifications. ''There is a great outlet for cement pipe,'' he said, ''in the future, by the closing of the open ditches; larger tile is being used right along for this class of work in Iowa, Minnesota and Illinois.''

R. P. Van Deusen, civil engineer of Pekin, Ill., was slated for an address on ''Cement Tile as a Drainage Engineer Sees It,'' but in the absence of Mr. Van Deusen, James McCutcheon, of Hennepin, Ill., was called upon by the chairman to make some remarks, and he spoke as follows:

''We turned out 3,000 to 3,500 tile a day; in November we shipped about 70,000, but our trouble is lack of barges, in addition to being weak in railroad facilities. The deep waterways proposition will help us. The hardest knocks we get come from the clay people, who go out and get our prices and cut in on our business. If the cement tile people would get together and get uniform prices like the clay people do I believe it would be of benefit.''

A. D. Miller, of Goshen, Ind., then read a paper on ''The Business End of Tile Manufacturing.'' Mr. Miller said in part: ''In regard to the business end of tile manufacturing I would say that the first important part is to arrange the factory so as to use as few men as possible in handling the material, and my way of doing this is to have a pit on the outside of the factory wherein to dump the sand, and from there elevate with a belt conveyor inside the building to a bucket conveyor which will carry the sand into the screen and then carry by a screw conveyor into a small bin so arranged as to measure the sand according to the amount that must be used.

''The second important feature is the use of a batch mixer located under the measuring device, and by using a batch mixer the material is always in front, so that the mixer man may know when the cement and sand are thoroughly mixed dry before adding water. There are occasions once in a while when the sand is too dry, then it is very important that water be added before applying the cement. By this method, with good sharp sand, there will always be a very good mixed material; by using three parts sand and one part cement this will make the very best tile with the proper curing device.

''I would recommend either a single or a double track kiln. We use the double track, which affords the very best results. These kilns should be airtight and should be so arranged as to be furnished with all the condensed steam that the tile could absorb for at least 30 hours. I would recommend furnishing this condensed steam from the exhaust steam of the engine where the plant is run by steam power, but in using electric power I would suggest the installation of a boiler so that the top of same is lower than the curing room, in order to have plenty of gravity to put in a return hot water system.

''We have in our plant in the center of the whole length of our lines a trough eight inches square filled with water, with a pipe running through the trough from one end to the other in which the water is moving continuously back to the boiler and return. This causes the water to boil in the trough and will condense the water into vapor steam.

''I would also suggest that after the tile is piled on the yard that pipes be so arranged that the tile could be sprinkled once a day. The proper time in the summer months would be in the evening.

''Now I find in making my visits to different plants, that with the way we have our plant arranged, we can manufacture tile with one man less than any of our competitors, where they handle all their material by using a shovel, shoveling the sand into the mixer and then also shoveling their mixed material into a place from which it is carried into the tile machine. The way we have our plant arranged, from the time the sand drops from the wagon we need not touch it until it is made into tile; which we claim is very necessary in order to lower the cost of manufacturing tile.''

In reply to a question from President Atwood as to his method of selling the product, Mr. Miller said: ''We advertise in the local papers, with a view to educating the people as to the use of cement tile. We have people come 12 miles to haul our tile, where they could buy clay tile nearer home. We had the Universal people send us some of their booklets, which we distributed to the farmers in our vicinity. We make tile up to 16 inches. We generally have an advertisement in the newspaper for three months at a time, and carry a cut of our factory and change the advertisement occasionally. Where cement tile are laid in shallow places frost will have no effect on them, whereas clay tile is affected by frost. We absolutely guarantee our product.''

President Atwood: Have you anything in regard to cost data?

Mr. Miller: We know what it costs us to manufacture 4, 5 and 6-inch tile. We make a record every day, and know how much sand and cement we use and figure up every evening. Sand is costing us 70 cents a yard, unscreened. We use ½-inch mesh screen for all sizes of tile.

Mr. Hammen: Summing up the amount of sand, labor, material, etc., used during a day, we keep track of each size of tile made and figure on tonnage basis and check up every night.

Messrs. Speis, Hammen, Dennison, Sokall, Rice and other members discussed the subject of cost at some length, and the question of what constituted overhead expense was also gone into very carefully.

Mr. Bingham outlined the process of curing tile, and stated that he believed that the best method of manufacturing it was to put the necessary water in the tile when they are made and add such further amounts either in the form of steam or water as will prevent loss of this water of the mix until the desired strength has been attained. Other members spoke of sprinkling the tile after it had been made.

The paper prepared by Arthur S. Bent, of Los Angeles, Cal., on ''Construction of Concrete Pipe Lines,'' was read by Mr. Jones, in the absence of the author.

Mr. Bent reviewed briefly the history and development of concrete pipe and the part it has played in the upbuilding of the empire of the West. The preëminence of concrete pipe as a water pipe is based upon the remarkable fitness for the service required, which is not even approached by any other material, and to this must be added its low cost, which is again an unusual condition, for, though the best is the cheapest in the end, it is seldom the least costly at the beginning.

The paper went on to point out that Portland cement has become the leading factor in irrigation projects throughout the barren deserts of the West and the orchards and fields of southern California, where irrigation has now reached the highest development in the world. All this led to the concrete pipe irrigating system. Thirty years ago the first crude attempts were made in southern California to manufacture and lay concrete pipe lines for irrigation purposes.

In closing Mr. Bent's paper stated: ''Concrete pipe is the very warp of the fabric of arid land

development, and its use has extended to every civilized region where water is conveyed to soil. So ideally does it perform this service that we may claim it will ultimately carry all the irrigation water of the world, and that where concrete pipe is most used will be found the most competent civilization and the arena for the highest achievement of the human race."

President Atwood: I am against this freezing proposition. I have noticed that the tile which freezes does not have the strength of the tile which does not freeze. We never send any of our tile out that has once frozen. In regard to getting boards and supervisors to accept cement tile, it seems to me it is getting to be one of the easiest things to do today. In the past there has been a great deal of poor cement tile put on the market. We have overcome that to a great extent in Iowa at the present time through the adoption of standard specifications. Any cement man can compete with the clay product and have those specifications used, and just as soon as you can get those specifications adopted by your supervisors you have got some basis on which to make your competitor work. The strength of tile in a drain depends on the width of the ditch. You can put a foot wide tile in a ditch, and that will just hold it. It just depends upon where the tile is placed how strong the tile has got to be to hold up the load.

President Atwood appointed the following nominating committee: Fred Spies, Graetting, Iowa; A. D. Miller, Goshen, Ind.; James McCutcheon, Hennepin, Ill.

About 35 delegates were present when Thursday afternoon's session of the Interstate Cement Tile Manufacturers' Association commenced. B. Blair, of Woodstock, Ontario, Canada, vice-president of the organization, called the meeting to order at 2:30 o'clock, and expressed his great pleasure at being called upon to preside.

The first item on the program was an address on "Concrete Sewer Pipe," by W. B. Dunning, assistant engineer of the Information Bureau of the Universal Portland Cement Co. Mr. Dunning pointed out the application to the making of concrete sewer pipe of those laws which must be observed in the successful use of Portland cement in any structure in which strength, impermeability and resistance to the destructive agencies of nature and the elements being a prime requisite—in short to make good concrete. He also explained what is meant by using proper materials and making and curing concrete sewer pipe right.

He reviewed the history of sewer pipe from the Roman era up to the present time, and stated that there are 200 to 300 miles of concrete sewers in Paris at present. "In 1860 cement sewers were first used in this country," he said. "There are three things essential; first, the pipe must be composed of proper materials; second, it must be made right, and third, it must be cured right."

Mr. Dunning stated that experience has shown that clean aggregate, which most commonly means freedom from clay, loam or crusher dust, means more of a saving to the manufacturer in quality of the product in the manufacture of concrete sewer pipe than in almost any other use of concrete. "The cost of manufacturing, including operating, labor and overhead charge," he said, "found from an analysis of cost data from a representative factory, amounts to from 40 to 60 per cent of the total cost of the pipe in the yard, depending upon the size of the pipe. "Aside from all consideration of quality, it will be found more economical," he stated, "to use none but the best materials on account of the great saving in the manufacturing process."

Illustrations of the following concrete sewer pipe machines were shown on the screen and much interest was manifested by the members as the various machines were described in detail: Thomas machine, manufactured by the Thomas-Hammond Machinery Co., 5-7 St. Paul avenue, Tacoma, Wash.; the Atlas machine, made by Atlas Concrete Pipe Machine Co., of Salt Lake City, Utah, and the Stewart machine, manufactured by the Cement Tile Machinery Co., of Waterloo, Iowa, which was described at length by Mr. Stewart.

Mr. Blair: I am sure we all appreciate the information given. I might say that Mr. Stewart was one of the first to make machines for manufacturing tile, and the tests of this pipe will have to be taken up principally or jointly by the pipe manufacturers, in order to determine the strength necessary to be attained by different sizes of pipe for specific purposes. One of the main features in the manufacture of sewer pipe is the curing; it is necessary to get the pipe right into the steam cure as quickly as it is made, so that the heat and moisture is preserved before it gets its initial set.

The last speaker referred to the sprinkler system. "A great many of us have to pay for the water we use. We have a very fine sprinkler made up which throws a spray so fine that you can scarcely see it, and I find it makes an excellent spray. We can leave it on the kilns for two hours and it will use only about three and one-half feet of water."

John L. Zeidler, of the St. Joseph Reinforced Concrete Pipe Co., St. Joseph, Mo., brought up the subject of the Western Classification Committee having placed reinforced concrete pipe in Class "C," as against clay pipe being in Class "E," the clay having a lower rate than the concrete pipe of 33⅓ per cent, in spite of the fact that there is less breakage on reinforced concrete pipe than on clay. In handling 18 cars of concrete pipe he stated that the breakage was less than 2 per cent. Mr. Zeidler urged the members of the association to bring this matter to the attention of the Interstate Commerce Commission, and point out to them that this was a discrimination in favor of the clay product.

Mr. Atwood suggested that the state manufacturers' organization take this question up with the proper authorities.

Mr. Blair: As I see it, our whole weakness is this, that the organization has not been keeping pace with the progress of the concrete pipe industry. What we need is funds to carry on work of this kind. My idea would be to make the membership of this association much larger, and then place more means at the disposal of the treasurer to handle matters of this kind.

Secretary Hanson: There are two points that have been brought up which I would like to take up together. One is Mr. Zeidler's suggestion in reference to the organization of a pipe association. This association is supposed to include manufacturers of sewer pipe, as well as manufacturers of drain tile. It was started originally by drain tile manufacturers and got that name, but there are a number of manufacturers of sewer pipe of other kinds and I believe that we can get others in when they find out what we are doing. The more we get the stronger we will be and the more good we can accomplish.

The other point is that the association is not keeping pace with the industry, and right along those two lines, and to show the sewer pipe manufacturers that we do want them in, and also that we are keeping up to the progress of the industry, I want to introduce an amendment to the constitution to change the word "Tile" to "Pipe" in Article I, so it shall read as follows:

"This organization shall be known as the Cement Pipe Manufacturers' Association." I move that this meeting approve this amendment.

Mr. Bingham suggested that the word "Interstate" be changed to "American," stating that on account of the fact that there are some very good people from Canada who are members of the association, and all desired to make them feel at home in the organization. Mr. Bingham's suggestion was adopted, and the name of the organization was changed to "American Cement Pipe Manufacturers' Association."

Mr. Blair brought up the question of membership fees, suggesting that the same be raised to $20 or $25, so that the work of the association can be carried on more actively. Mr. Atwood said that while in his opinion it would be a good thing, on the other hand of all the members that they have had, so far there are only a few who are willing to pay $5, and some of these even object to pay that small sum. His idea would be to cut the membership down and then try and organize state associations and make those dues large. Mr. Atwood made a motion that the matter of organization and dues be left to a committee composed of the officers of the association, and that this committee report its findings to the members through the mail, and that a letter ballot of the members be taken as to their decision in the matter of dues. The motion was seconded and adopted.

Election of Officers.

The nominating committee made the following report, which was adopted:

President—B. Blair, Woodstock, Ontario, Canada.

First Vice-President—J. J. Hammen, Spencer, Iowa.

Secretary-Treasurer—E. S. Hanson, Chicago, Ill.

It was decided that each state represented in the association should appoint its own vice-president.

Mr. Blair thanked the members for the great honor conferred on him, and said: "I can only say that I trust we will be able to get the organization in good working order. The work of the president can only be carried on through the kindly support and coöperation of the individual members of the association, and I think I am safe in saying that I will get the hearty support of all the men I am acquainted with in the manufacture of concrete pipe.

The meeting then adjourned sine die.

IOWA CEMENT USERS' MEETING.

The Iowa Cement Users' Association completed one of its most successful meetings at Ames, Iowa. There were about three hundred engineers and cement users assembled.

The following officers were elected for the ensuing year: J. B. Marsh, Des Moines, Iowa, president; A. S. Tanner, Jefferson, Iowa, vice-president; B. P. Comoli, Sioux City, Iowa, vice-president; Geo. P. Dieckmann, Mason City, secretary and treasurer.

The convention opened at 10 a. m., January 8th, with an address by President Parson of the Iowa State College at Ames. The response in behalf of the association and the address of welcome on the part of the president was then delivered by F. P. Wilson of Mason City. Mr. Wilson then appointed the regular committees.

A general discussion followed this, and then Prof. R. C. Crum of I. S. C. spoke on "The Practical Methods of Cement Tests."

P. P. Comoli of Sioux City, designer of some of the most beautiful concrete homes, told about the "Architecture for Concrete Buildings."

J. P. Marsh of the Marsh Engineering Company, of Des Moines, gave a fine summary of "Concrete Bridge Building," in which he has been identified as an expert for many years. Mr. Marsh is graduated from I. S. C.

In the evening a joint session with the highway engineers was enjoyed. The latter had been holding their convention for several days. Three hundred were in attendance. Motion picture illustrations of cement construction combined with a lecture on the subject by A. B. Becker, engineer of the Universal Cement Company.

Mr. Dieckmann in his scheduled address handled the subject "Aggregates" in a manner most interesting and instructive. A general discussion followed in which many of the most prominent engineers took an active part.

Prof. McDonald, of the Iowa Highway Commission, then appeared and invited the cement users to convene with them in joint assembly and tendered the honor to Mr. Wilson, president of the cement users, of presiding over the joint meeting.

The climax of the heavy artillery came with the appearance of H. F. Anthony, division engineer of the Mississippi Power Company. His topic was "The Keokuk Dam as an Example of Cement Construction."

The retiring president at that time extended his thanks to Dean Marston, Prof. Byers and other members of the school faculty for their kind and untiring efforts toward making the meeting a success. In conclusion he thanked the members of the Iowa Association for the kind and courteous treatment accorded him during the past two years and wished all a successful New Year and bid them goodbye.

Highway Commissioners of Cook County Give Banquet.

Road engineers, highway officials and other visitors to the National Conference on Concrete Road Building were tendered a banquet at the Auditorium hotel last evening by the Highway Commissioners' Good Roads Association of Cook County. This banquet as a social feature in connection with the Road Conference was a successful exemplification of the spirit which prevails when gatherings are held for the advancement of the propaganda of the good roads movement.

The slogan, "Where We Will, There's a Way," was adapted to this meeting and banquet of the Highway Commissioners Good Roads Association of Cook County and with this slogan Peter M. Hoffman, coroner of Cook county, appropriately officiated as toastmaster, and in a manner worthy of the excellence of the affair. In the course of events following the service of an excellent menu, adapted to the occasion. Toastmaster Hoffman introduced as the first speaker, Hon. Carl Fisher, of Indianapolis, who is president of the Lincoln National Highway Association. Mr. Fisher backed by his own heart interest in the Nation's greatest highway undertaking, was afforded an opportunity for bringing some new heart interest into the Lincoln Highway movement—and he did.

Edward N. Hines, was introduced as the "Father" of successful concrete highways, and in a short speech he again told of the famous concrete roads of Wayne county, Michigan.

Hon. Chas. A. Bookwalter, ex-mayor of Indianapolis, was next introduced and he made a speech that will never be forgotten by those so fortunate as to sit in his presence while he told of selecting a route for Lincoln Highway, with a motorcar tour from Indianapolis to San Francisco.

The presence at the banquet of Hon. Horatio S. Earle (Good Roads Earle) will also be pleasantly remembered by the excellence of his brief after-dinner speech.

LIME MEETING AT NEW YORK

Prosperity and Progress Were the Prevailing Features of Very Inspiring Occasion.

The annual meeting of the National Lime Manufacturers' Association was held in New York City, with headquarters at the Hotel Astor, on February 4-5. More than 90 per cent of the tonnage of the country in hydrated lime was represented at the meeting by the heads of the establishments, and in some cases there were several representatives. As a matter of fact, all of the progressive dealers of lime in the country were on hand and the meeting was one of the most satisfactory and interesting the association has ever had. Those few who were unavoidably detained must ever regret that they missed the annual meeting of 1914, for it was an epoch maker in the history of the trade. There was more good business talked over and decided upon than ever before, and besides this, the usual interesting features brought out by the technical men were fully as instructive as the best records attest in past meetings.

President William E. Carson, of Riverton, Va., who has been the gallant leader of the association for the past seven years, was re-elected by acclamation, and Col. C. W. S. Cobb, who is the established and authorized "bumping post" of every argument that springs up in the meetings, was re-elected to handle the funds in his capacity of treasurer, as he has done since the beginning of the organization.

It was a harmonious gathering, for the lime manufacturers in the past dozen years have learned to know, respect and love one another, and good fellowship prevailed throughout the very pleasant occasion, which was educating, and hence helpful to everyone who participated in the proceedings.

Our sketch of the meeting which follows hardly indicates the valuable things that were developed at the meeting, but it shows in outline the great work that the association is accomplishing, and fully demonstrates that no man who has his money and the effort of his business career invested in the lime industry can hope to succeed so well outside of the National Lime Manufacturers' Association as he can by becoming a member of the same and keeping abreast of the march of progress.

At the time the National Lime Manufacturers' Association was organized the lime industry of the United States presented a very gloomy spectacle. It was perhaps the worst example of a hit-or-miss industry, without a policy and entirely dependent upon the practices of guerrilla warfare of the worst type that was ever known to modern commerce. At the present time the lime producing industry is a respectable business and it is so intelligently conducted as to merit a well-earned place among American activities as a growing and progressive industry—one which has come out of darkness into light, gaining recognition and permanent standing in all of the markets upon a higher usefulness to the user and a more satisfactory basis to the producer than ever was known in the past. This condition has been brought about largely by the co-operative features developed in the National Lime Manufacturers' Association and the acquaintances and friendships formed at the various conventions of that body.

Without a doubt the lime industry of this country as exemplified by the National Lime Manufacturers' Association is far in the lead of the compeers in any other country. Our quarry practice has developed to the point where the big steam shovel is reclaiming the rock in the quarries, where improved methods of drilling and blasting have been successfully introduced to make greater economy with increased output and the elevating and conveying machinery excels that in use in any other country of the world. Improvements in the burning of lime by the route of the gas producers and the rotary kiln, and the control of the gases of combustion have advanced farther; and the greatest improvement that the industry has ever known, the successful introduction of hydrated lime into all of the markets, easily places the American lime industry on the high seat in the front row, so enthroned as the unquestioned leader in its particular line.

Without a doubt lime is the first building material that was ever manufactured, and its importance in this particular field has not only been held but is being rapidly advanced with each succeeding season. The chemical uses of lime in its position as the most important alkaline base is better understood and well maintained. The use of lime for sweetening acid soils and the other agricultural uses has been so promoted that it now becomes one of the most important features of the production and marketing of lime. In this direction so much has been accomplished that it is now impossible to tell if there is a limit to the intelligent and profitable use of lime in the great agricultural development which the country is bound to have in the future.

In each and all of these features of the lime business the National Lime Manufacturers' Association has been the first incentive and the leader of the work that has been done, and accomplished the result that we now ascribe to the intelligent lime industry of America. It is remarkable that those concerned, either great or small, who have not participated in the work of the National Lime Manufacturers' Association, have not progressed but are in the same condition of fighting it out along the lonesome trail in more or less of a hopeless way, and are not aware of the enthusiasm and determination which has become a characteristic of their more energetic and enlightened brethren.

ROCK PRODUCTS has been on the job at every meeting the association has ever held. In fact, the

WM. E. CARSON, RE-ELECTED PRESIDENT NATIONAL LIME MANUFACTURERS' ASSN.

suggestion which grew into the association was started among a few of the early readers of ROCK PRODUCTS. Our cheerful co-operation has helped to smooth the path that has led to all the progress the association has accomplished and it is with a feeling of no little pride that we accept and consider ourselves as participants in, and some factor of, all that has been accomplished for the trade.

Opening Session.

The lobby of the hotel was pretty fairly sprinkled with delegates to the lime convention on the night of the 3d, so that when President Carson took the chair promptly at 9:30 a. m., rapping the table vigorously with his gavel for attention, the meeting came to order with nearly all of the chairs in the gorgeous ballroom of the hotel filled with men who had come to make another chapter in lime history. The president stated that he would defer making an annual address for the reason that the program was so full of good things which he felt that none of the attendants could afford to miss, that the members could read what he had to say in the proceedings and we could immediately begin with the program.

Henry S. Spackman, of Philadelphia, chairman of the committee on standard specifications for lime, presented the authorized report from the proceedings of the American Society for Testing Materials taken from the report of the meeting of that body held in June, 1913, at Atlantic City. Mr. Spackman explained that he was chairman of the committee of the American Society for Testing Materials to draw up standard specifications for lime as well as occupying the same post with the National Lime Manufacturers' Association. The full report of the American Society for Testing Materials in pamphlet form was distributed among the members, and Mr. Spackman asked that the same be considered and passed upon by the association with such corrections as might be desired, at the same time asking for suggestions for its improvement. The proposed standard specifications for lime had been referred back to the committee for further consideration by the American society and on motion of Charles Warner it was decided that the secretary read the proposed standard specifications by paragraphs for the approval or rejection of the meeting.

Suggestion was offered that the attitude of the meeting to the specifications and the general purposes and objects of such specifications be arranged before proceeding with the matter, but this was passed. Dr. Lazell offered a substitute for the definition of lime, but Messrs. Spackman and (Charles) Warner felt that the difference presented only dealt with phraseology and classification. Messrs. Conwell, (Irving) Warner and Spackman defended the definition as given in the proposed specifications and a motion that the committee draw up a better definition was defeated. Mr. Stevens doubted if it would be possible to make any serious improvement on the specifications as presented and Col. Cobb started something whenever occasion offered. Mr. Emley insisted that the action of the association was wanted on these specifications. Practically the whole morning session was consumed in the discussion of the proposed standard specifications, which as amended were made to read as follows:

The specification committee was working while the members ate their luncheon and without a doubt during the half-hour recess they received suggestions enough, not to mention the criticisms, to fill a small volume.

SPECIFICATIONS FOR LIME AS AMENDED.

1. Lime is a product resulting from the calcination at a temperature below the cintering point, of a material containing carbonates of calcium or calcium and magnesium, which may be or has been converted to a paste or a dry flocculent powder, by slaking.

2. Limes may be divided into two commercial forms:

(a) Quicklime.—A product coming from the kiln, without subsequent treatment other than sorting, crushing or pulverization, which slakes on the addition of water. Quicklime may be shipped either as lump lime or pulverized lime. Lump lime shall be kiln size. Pulverized lime is lump lime reduced in size by mechanical means.

Quicklimes are divided into two grades:

Selected.—A well-burned lime, picked free from ashes, core, clinker or other foreign material.

Run-of-Kiln.—A well-burned lime without selection.

(b) Hydrate.—A dry flocculent powder resulting from the hydration of quicklime.

Hydrates are divided into two classes:

Building and Chemical.—A lime hydrated to definite chemical proportions, and reduced to a fineness suitable for building purposes.

Agricultural.—A lime reduced to a powder by hydration. As calcium and magnesium oxides play an important but distinct part as fertilizers, agricultural hydrates are divided into two classes, namely, high-calcium and magnesian hydrates.

3. Where quicklime or hydrated lime is to be used for chemical or agricultural purposes the desired content of calcium or magnesian oxide shall be specified in advance by the purchaser.

4. *(a)* All limes shall be subject to inspection.

(b) The lime may be inspected at the place of manufacture.

(c) The inspector representing the purchaser shall have free entry at all times while work on the contract of the purchaser is being performed, to all parts of the manufacturer's works which concern the manufacture of the material ordered. The manufacturer shall afford the inspector all reasonable facilities for inspection and sampling, which shall be so conducted as not to interfere unnecessarily with the operation of the works.

(d) The purchaser may make the tests to govern the acceptance or rejection of the lime in his own laboratory or elsewhere. Such tests, however, shall be made at the expense of the purchaser.

I. CHEMICAL PROPERTIES AND TESTS.

(A) Sampling.

5. When quicklime is shipped in bulk the sample shall be so taken that it will represent an average of all parts of the shipment, from top to bottom, and shall not contain a disproportionate share of the top and bottom layers, which are most subject to changes. The sample shall comprise at least 10 shovelsful taken from different parts of the shipment. The total sample taken shall weigh at least 100 lb., and shall be crushed to pass a 1-inch ring, and quartered to provide a sample of the size required by the laboratory. The sample to be sent to the laboratory shall immediately be transferred to an air-tight container.

6. When quicklime is shipped in barrels at least 3 per cent of the number of barrels shall be sampled. They shall be taken from various parts of the shipment, dumped, mixed and sampled as specified in Section 5.

7. The sample taken from either pulverized quicklime or hydrated lime shall be a fair average of the shipment. It is recommended that where conditions permit, 3 per cent of the packages shall be sampled. The samples shall be taken from the surface to the center of the package. The sample to be sent to the laboratory shall immediately be transferred to an air-tight container.

(B) Chemical Tests.

8. *(a)* Selected quicklime shall contain not under 90

per cent of calcium and magnesium oxides, and not over 3 per cent of carbon dioxide.

(b) Run of kiln quicklime shall contain not under 85 per cent of calcium and magnesium oxides, and not over 5 per cent of carbon dioxide.

9. Building and chemical hydrates shall contain not over 5 per cent of carbon dioxide, and not under 1 per cent of water in excess of that required to fully hydrate the calcium oxide present.

10. *(a)* High-calcium agricultural hydrate shall contain not over 5 per cent of magnesium oxide, and not over 10 per cent of carbon dioxide; and shall contain not under 80 per cent of calcium and magnesium oxides after water of hydration has been subtracted.

(b) Magnesian agricultural hydrate shall contain not under 5 per cent of magnesium oxide, and not over 10 per cent of carbon dioxide; and shall contain not under 80 per cent of calcium and magnesium oxide figured on any anhydrous basis.

II. PHYSICAL PROPERTIES AND TESTS.

(A) Quicklime.

11. An average 5-pound sample of selected or run-of-kiln quicklime shall be put in a box and slaked with sufficient water to produce a lime putty, which shall be allowed to stand for 24 hours, then washed through a standard 10-mesh sieve. Not over 3 per cent of the weight of selected quicklime, nor over 5 per cent of the weight of run-of-kiln quicklime, shall be retained on the sieve. The sample taken for this test shall not be crushed finer than will pass a 1-inch ring, either before being sent to the laboratory or at the laboratory. (Section 11 was referred back to committee for further consideration.)

(B) Hydrated Lime.

12. *(a)* Building and chemical hydrates shall leave by weight a residue of not over 5 per cent on a standard 100-mesh sieve.

(b) Agricultural hydrate shall leave no residue on a standard 4-mesh sieve, and shall leave by weight a residue of not over 10 per cent on a standard 20-mesh sieve.

III. PACKING AND MARKING.

(A) Lump Lime.

13. When not shipped in bulk, lump lime shall be packed in barrels, which may weigh either 200 pounds gross and contain approximately 185 pounds of lime, or 300 pounds gross and contain approximately 280 pounds of lime.

14. The name of the manufacturer, grade and gross weight shall be legibly marked on each barrel.

(B) Pulverized Lime.

15. Pulverized lime shall be packed either in cloth bags containing 167 pounds, or in paper sacks containing 80 pounds.

16. *(a)* When shipped in cloth, the name of the manufacturer and the grade of lime from which it was prepared shall be legibly marked or tagged on each bag.

(b) When shipped in paper, the name of the manufacturer and the grade of lime from which it was prepared shall be legibly marked on each sack.

(C) Hydrated Lime.

17. Hydrated lime may be packed either in cloth bags containing 100 pounds, or in paper sacks containing 40 pounds.

18. *(a)* When shipped in cloth the name of the manufacturer and grade shall be legibly marked or tagged on each bag.

(b) When shipped in paper the name of the manufacturer and grade shall be legibly marked on each sack.

(c) The marking of agricultural hydrates shall show whether they are high-calcium or magnesian.

IV. INSPECTION AND REJECTION.

19. Unless otherwise specified, and rejection based on tests made in accordance with Section 4 (d) shall be reported within two working days from the taking of samples.

20. Samples tested in accordance with Section 4 (d) which represent rejected lime, shall be preserved for five days from the date of the test report. In case of dissatisfaction with the results of the tests, the manufacturer may make claims for a rehearing within that time.

Practically every member joined in the discussion of the specifications and the matter was closed temporarily so that the committee could confer, and the paper of Mr. Kenneth Seaver entitled "Results from Experience in the Use of Silica Brick in Lime Kilns During 1913," was called for. The paper dealt with the advance that had been made in the application of silica brick and in the increasing use of the same. He claimed a gain of 75 per cent by the use of silica brick for lining lime kilns, in some instances the lining standing up for 18 months in the same kiln where an average of three or four months had been the past record. Mr. Porter remarked that he had used silica brick and gotten good result, but that there had been some trouble with expansion and contraction which had caused spalling. Mr. Seaver explained that the spalling was not a serious proposition since it was the result of the expansion of the heat and only occurred once.

The meeting then adjourned to luncheon, which was served "a la buffet" in the convention hall.

Afternoon Session.

After luncheon the subject of the Standard Specifications was resumed.

Dr. Lazell's paper containing suggestions bearing upon the specifications was read. He went on to tell how several of the leading contractors in Portland, Oregon, and other places on the Pacific coast were using hydrated lime in concrete mixtures for the sake of economy as well as the improvement of their work. Hydrated lime in that market costs the contractor $14 per ton.

Further discussion of the specifications followed by Messrs. Stevens, Gray, I. Warner and Col. Cobb.

H. S. Gray moved that the committee of this association be instructed to draw three classifications in the standard specifications, designed to cover the uses of lime for building purposes, for chemical uses and for agricultural purposes.

This was seconded by Charles Warner, after amending the motion so as to instruct the committee to get the three specifications into good shape for presentation for the consideration of the American Society for Testing Materials.

Professor W. F. Massey, of Salisbury, Md., presented his paper entitled "A Farmer's Experience With Lime." This paper created a sensation, for it proved to be the best practical document on agricultural lime that the association has ever had. Professor Massey is an extensive and expert farmer and heavy user of lime. He maintained that lime properly used together with leguminous crops will support the farmer's soil, but it will not make good soil out of bad. After thorough trial of both, he would rather have one ton of lime than two tons of ground rock, and he recommended the use of hydrate in all cases where the freight rate is low, but would use raw burned lime where the freight rate was high. Enthusiastic applause was accorded this paper.

H. S. Gray moved a vote of thanks to the author, which was unanimously given.

Peter Martin moved that the paper be printed at once in pamphlet form, and this was seconded by Col. Cobb, with the addition that a roll call be had, so that the members could subscribe for quantities of the pamphlet. It was so ordered, and many thousands of the pamphlets were ordered by the several members.

Charles Warner's paper "Sales Promotion Policies in the Lime Industry" proved to be another chapter of pronounced progress to the industry. Mr. Warner's system is full of brilliant ideas of a practical nature, and in this paper directed at the sales end of the business he was in his element and at his best. He condemned the time honored practice of plugging the established markets in order to swap customers at high expense with one's neighbors to the neglect of rich and unworked fields easily within reach of profitable promotion. Every lime producer can much better afford to spread out after new tonnage in the field of concrete work and road work which has recently grown so popular and important. It is now high time to go after new sales policies and systematically create a wider field for a greater tonnage of lime. Referring to Professor Massey's paper he said the additional use of agricultural lime contained possibilities as yet scarcely touched upon. In conclusion he recommended a publication to be supported by the association and the establishment of a thoroughly organized bureau to carry out the details of a nation wide promotion. The paper was accorded great applause.

O. C. Baru, being called upon, told of his observations on farming in Europe, showing that the Germans have got us beat to a finish on the per capita and per acre basis. In his own farming operations in Ohio he has been using lime liberally on more than one thousand acres and found that it made good returns.

Col. Cobb made a ringing speech in support of Charles Warner's paper, concluding with a motion to have a committee of five consider and report recommendations thereon. It was so ordered.

H, S. Gray remarked that the only successful waterproofing ever introduced for concrete in this country is hydrated lime.

Lawrence Hitchcook stated that he recently talked with P. H. Bates, head of the testing station at Pittsburgh of the Bureau of Standards in reference to hydrated lime in concrete mixtures, and found that gentleman inclined to be very uncommunicative on the subject.

Warren E. Emely said that cement surfaces could be made waterproof by troweling, but that when lime was present it did not require so much trowel work to get the same result.

Dr. Lazell told about the use of ten per cent of hydrated lime being used in all concrete mixtures on the Pacific coast, particularly in the case of high grade work. He said lime makes concrete plastic and it acts as a mechanical water tightener, and in that way it keeps the water out.

J. F. Pollard related very satisfactory results obtained by the use of hydrated lime in waterproofing the concrete in a hotel job in Kansas. But he questioned the advisability of guaranteeing results.

A. H. Lauman stated that in the construction of his new plant he had put the rock crushers below the floors, enclosing them within a ten inch concrete wall. In all the concrete we used over fifteen percent of hydrated lime and it has made a perfectly tight job. We built all of our new kilns of concrete using this same mixture. They are fifty feet high and tough and hard as could possibly be needed. At the first meeting of this association I was the one man who was foolish (?) enough to go into the hydrating business, but there is plenty of company now. You can depend upon it, that hydrate makes good watertight walls everywhere it is used.

At this point H. S. Spackman gave his paper on the "Uses of Hydrated Lime in Cement Mortars." This was an exhaustive study of several series of tests conducted so as to compare the tensile values of various selected mixtures of lime and cement with sand in several different proportions. The same mixtures of magnesia or lime hydrate and high calcium hydrate were carried throughout the tests. The results were graphically illustrated by means of plotted curves showing the variations in pounds as related to the lapse of time in days. After explaining the illustrations Mr. Spackman said: "While it is unwise to draw conclusions from a single set of tests, still the results indicate the variation of water content affect the change in volume more than the temperature. The addition of hydrate increased the expansion and contraction, still the hydrate kept all the test prices in compression. Its use is advantageous because cement mortars containing hydrate will show less change in volume.

W. B. Chapman next presented a very entertaining and instructive paper entitled "Producer Gas and Its Application to Lime Burning." After a brief explanation of the larger yield from the fuel because of the longer flame secured by burning with gas, the speaker showed by stereopticon views every step in the development of producer gas outfits. Some of the early types were very crude, and others of the highest mechanical attainment were not at all applicable to the lime business. But the whole field of gas production and control was fully shown, and Mr. Chapman was given an ovation of applause at the close.

Brother Stevens who for many years was a doubting Thomas, admitted that he is now a producer gas enthusiast.

The convention at this point adjourned to 9:30 in the morning, and the hard working delegates went to dinner and to social recess, each to his own liking.

Second Day.

The delegates were a little slow in getting to their places in the convention hall, but President Carson was not inclined to delay matters, and as soon as it became known that the meeting was in progress the room filled up until the last chair was occupied.

The president read Mr. Kritzer's paper devoted to the commercial aspect of the hydration of lime in which Mr. Kritzer showed that the commercial success of a hydrating proposition must be first carefully studied out before the operation is undertaken. He asserted that all lime can be thoroughly hydrated when properly burned, but that some lime when hydrated will not have the marketable qualifications, and again the location and business connections of the proposed hydrating plant always have a very marked influence upon its profitable development. The paper was drawn from Mr. Kritzer's wide experience, broad observation and intimate study of the details of the hydration of lime, in which industry he has been a leading factor from its first introduction.

A. H. Lauman was next called upon to speak on the subject of "How to Burn and Hydrate Lime." He said that he had not exactly made the president a promise that he would prepare a paper, but that he had agreed to give the best that he had on any subjects at the meeting. Mr. Lauman said: "I have never considered the separation of the fine particles in the hydrate as a difficult problem in our process. It is one of the first things that we accomplish. No one can start a small plant and produce hydrate profitably. With a large output the process gets cheaper, for the volume of lime seems to help the thing along, and there is a pronounced economy in running the plant twenty-four hours a day. We developed in our practice that it is important to keep the lime content as originally found in the rock intact; that is, to keep all the material in the goods that is finally shipped out, and not let any of it escape into the air through the stack or otherwise. I realize that all limes are not alike, but I have worked out the best way for our particular lime for getting the most perfect hydrate to give all our customers the most satisfaction. Our continuous process is the safest and easiest to handle and we are running regularly eight tons per hour by that method. It requires only about 8 hp. to run the Lauman slacker, and it makes a little money the way we run it. Now, when it comes to burning lime, I will just say that I never knew hod to burn lime until I got the gas producer. We are using the Duff outfit installed by Mr. Bradley here, and it gives good, dependable business-like satisfaction. I know it is more economical than any other experience I have had in this direction."

Phil J. Dauernheim presented his paper on "The Operation of the Boiler Kiln During 1913." The kiln which Mr. Dauernheim described is one that has been developed at the big lime plant at Glencoe, Mo., by Patrick McLoon, a practical lime

burner of lifetime experience, under the guidance of Mr. Dauernheim. The kiln contains a boiler enclosed in the structure so that the heat of the kiln furnishes steam at the same time it is burning lime, and works advantageously in other ways as will soon appear. Mr. Dauernheim distributed a leaflet showing three sections of the kiln structure which made its construction quite clear. The interior of the kiln is provided with a steam jet through which the injected steam supplies the necessary element of moisture at the proper point in the burning zone. The kiln regularly produces four pounds of lime to one pound of coal, firing the coal direct. The kiln is cheaper in repairs than any other in operation at the various works of the Glencoe Lime & Cement Co., and they have a large number of types of kilns at their various plants. Mr. Daurnheim stated that the structure was called the McLoon boiler kiln. He stated that the fire passes up into the center of the kiln surrounding the boiler, which is covered with fire brick. The furnace has only thirty-two feet of surface, and induced draft is used from a blower. The kiln has been in continuous operation for three years without any repairs to date. Draws are made every six hours, and the feed consists of three or four shovelsful of coal every twenty minues. At each draw 100 to 125 bushels of well-burned lime are taken from the kiln, so that the average production runs between 400 and 450 bushels per day. Speaking of the cost of the kiln, Mr. Dauernheim says that this particular kiln had been converted to the boiler type from an old kiln that was practically worn out and had to be rebuilt in some way, and $2,500 was spent in making the change. He figured that it would cost possibly $5,000 to construct a new kiln of this type, from the foundation up, having all of its parts new.

In conclusion he said that the kiln trims very nicely, and they use ordinary steam coal, and the kiln is fired by hand.

The association has been following the development of this kiln with a good deal of interest, and the consensus of opinion is that Mr. Dauernheim has accomplished a very resultful lime burning struture which indicates the state of progress in the direct firing camp.

The next paper was that of Edgar H. Latham, entitled "The Solving of the Plasticity Problem." Mr. Latham stated that his operation in the working out of a hydrating system has been confined to the magnesian lime of Virginia, but that these were similar in so many ways to other limes that he believed the processes would be pretty generally applicable. He mixes the ground lime with water in a pug mill and the resulting material is dropped into a pile, keeping the pile as high and compact as possible. The lime slakes while in the pile and afterwards the excess of water is dried out by a mechanical dryer. The process described in many respects resembles the early studies of Dodge in the Ohio field in the incipiency in the interest of hydrated lime. Mr. Latham said that he had never tried to hydrate a high calcium lime. He considered time for the combination with the water as an important factor in getting the ultimate hydrate and criticized the speed with which much of the hydration is done. He stated that he was confident that his process made plastic lime, for the reason that the practical plasterer who is always the final judge of such matters pronounced the hydrate produced as very satisfactory in the line of plasticity.

J. F. Pollock remarked that the plasticity of hydrated lime is the most important thing that the manufacturer has to consider, and he was unable to see how the excess of water was disposed of in the process just described.

Col. Cobb stated that he was hydrating high calcium lime and considered the Glencoe hydrate just about perfect.

Peter Martin said: "I have done everything there is to do in order to guarantee plasticity. To slake in putty form and then dry is one of the oldest methods, but was found too slow and costly."

Warren E. Emley said that in his laboratory work he found a new compound which was termed oxy-hydrate which is formed at a temperature of 700 degrees, often reached in the process of hydration. This has the yellow color that has often been noted and may account for crystalization, especially if there is too little water used in the slaking. Laboratory results indicate that popping comes from imperfect preparation of the putty more than anything else. Speaking of the addition of lime in Portland cement mortar, he said that his works showed that the strength decreased gradually until 25 per cent of lime is reached, but samples having 20 per cent of lime stored in water for one year had passed the standard boiling tests.

Col. Cobb was then called on for his experience in hydrating, and said: "We use the best lime that we burn for making hydrate. It is drawn on a hearth, advanced to the crusher and then to the crusher hydrate. We have a good man who attends to the guaging of our water. We have no free lime after our product passes the Raymond separator. He gets the right material into the hydrator first, and, after going through those six big cylinders, it is practically perfect. I will not say that it is as plastic as it might be, but we are working on that now and have no doubt that we have got it fixed."

Peter Martin said that he had made a very careful study of pops and come to the conclusion that nine times out of ten pops come from the hard wall plaster and not from the lime skin coat at all.

A. H. Lauman said, "Whenever pops occur in a lime job it is for the reason that some small particles in the stone are not calcined and consequently do not hydrate, but after a long period of time they do hydrate and that causes the pops."

Judge Charles F. Moore, of New York, next addressed the convention on the topic of "The Business Man's Influence in Public Affairs." He opened with a statement that the business man of today does not have the influence which logically belongs to his sphere. In early English history the men of affairs dominated public policy and this was the foundation on which our system was erected. We have a new idea of the equality of all men which is not true now nor never can be. The principle of equality before the law has become radically befogged into something else never intended. At the beginning of this republic it was the man of affairs in every community who was the leader which was right and proper, and so accepted. The development of our peculiar idea has quenched the individual and the business man is merged into the mass. Personal mind no longer dominates, no matter how good or how strong. The men able to accomplish things are always in the minority and our public officials can only pay attention to majorities which elect him and which is composed of the mass who are unable to lead or dominate. It is the fault of modern business that the best men are too busy to serve on public boards or even on juries; so engrosed are they in their own affairs, they don't wake up until it is too late in all political matters. At Washington, the law-makers don't know the sound of your voice when it is raised. The business men are not exercising the privileges nor performing the duties of citizenship, hence they are not good or desirable citizens. The abnormal personalities are the only kind that are picked out of the mass and heralded in the public print, so that we have come to the status of "to be good is to be insignificant," for only the wicked and the vicious receive notoriety. There is only one thing to do, get back to a right starting point by getting all good citizens as well as the business men to perform the legal functions of citizenship willingly and cheerfully and carry the public burden, no matter if it does not seem to pay in the doing of it, and so create a real commonwealth of protection and strength with all contributing and participating.

The full text of Judge Moore's speech is worthy of a place in every man's collection of literary gems and it is just the thing that the country needs and the most complete lesson for every business man to study and adopt.

At this point the nominating committee brought in their report as follows:

President: William E. Carson, Riverton, Va.

1st Vice-President: Martin Deeley, Lee, Mass.

2d Vice-President: J. F. Pollock, Kansas City, Mo.

3d Vice-President: Bernard L. McNulty, Anniston, Ala.

Secretary: Fred K. Irvine, Chicago, Ill.

Treasurer: C. W. S. Cobb, St. Louis, Mo.

Executive Committee: W. E. Carson, Chairman, ex-officio; Charles Warner, Wilmington, Del.; Lawrence Hitchcock, Cleveland, Ohio; H. S. Gray, Louisville, Ky.

A report was presented by Luther Keller, chairman, signed by him and J. K. McClanahan, Jr., and J. E. Baker, the full committee. On motion the rules were suspended and the secretary instructed to cast the ballot for the ticket nominated as a whole. The motion prevailed and the order was carried into effect.

The meeting then adjourned to luncheon which was served in the Assembly Hall.

The first thing on the program after luncheon was a paper by Lawrence Hitchcock devoted to "Hydrated Lime Plaster—The Bright Future of the Lime Industry." Mr. Hitchcock for a long time has been a careful student and hard working promoter of the return of the lime plaster to the ancient level of importance in the plastering trade. By his unaided efforts he has accomplished more in this line than all the balance of the lime producers. His paper was a mere guide to the remarks that he delivered and he had several poster size exhibits giving the statistical comparison of the growth of gypsum plaster and the similar decline of lime plaster year by year. He has found it successful to offer a prepared plaster consisting of 3.6 of sand to 1 of lime and when the first coat is to be used on wood or metal lath the correct amount of hair is added to the mixture. Such prepared lime plaster has been shipped as far as Florida to a satisfied customer. It has considerable saving to the plaster contractor on account of the possibility of retempering such material as is left over from one day's work to another. It has another advantage in that it is very easy to darby and smooth out on the walls. It has a much higher fire resistance than gypsum plaster, and Mr. Hitchcock's paper on the whole proved that he is the master of the subject in an economical way, and showed the wonderful advantages that the lime manufacturers generally seem to have overlooked in the last ten or twelve years. At one point in his talk Mr. Hitchcock read several letters from leading architects who approved his goods and his method of introducing the same. He told of the method of introducing the product which he had resorted to, and some of these proved to be amusing incidents of the plasterer expecting the new material to act like something entirely different than he had used. In one case he went so far as to tear the plaster off the wall just about the time it was setting because it wouldn't harden fast enough to suit the ideas of the worker. Mr. Hitchcock remarked that he expected the percentage of lime plaster to steadily increase, for the reason that the architect, the owner and the mechanic all were favorable to the goods when they became well acquainted with it. The first and most difficult task is to get the plasterer to use the new goods. Like most mechanics, they are opposed to learning anything and for the most part prefer to keep on doing the same old thing over and over again without having to exercise any "thinks" in connection with their day's work. Mr. Hitchcock's paper was cordially received by the convention, which was largely made up of the manufacturers of hydrated lime. Each man felt that it was a new step in the direction of opening up a wider field for their future operations.

Peter Martin got the floor and called attention again to the epoch-making paper that had been read by Charles Warner at the previous session. He said that it was going to take money to carry out the provisions of the motion that had been passed previously and that there were some expenses that will be incurred by the deliberation of the committee of five who would have to deliberate over the paper. He suggested the provision of the necessary funds by each man of the association contributing to the same on the basis of production, say 1 cent per ton, and in this way provide for the establishment of a publicity bureau and support the same by a larger assessment based on the tonnage, if it was found necessary to do so.

President Carson remarked that the promotion bureau at Washington, supported by Virginia and other neighborhood producers, has worked well, and he was confident that the same kind of work could be conducted on a national basis with practically parallel results.

Charles Warner remarked that he was interested in hearing what the other members had to say. Tonnage and prices go hand in hand and they are the main things to be considered in any trade organization.

Mr. Bradley spoke of the bad feature of making the Philadelphia market the dumping ground, and said that he thought that the matter under discussion was of greatest interest to lime manufacturers, and if carried into effect he was willing to donate $100 as a starter.

Mr. Hitchcock felt that the membership of the association might be too small if it was true that there are a total of 3,000 manufacturers of lime in the country. This provoked laughter, for it is well known that a very large majority of the official 3,000 are mere temporary operations of small significance.

Mr. Stevens remarked that he thought it would not be possible to get very far with the proposed promotion, because there were so many unseen factors that soon would become insurmountable problems. He moved that the president be given the power to appoint and instruct the committee, and it was so ordered.

Carl Langenbeck, an expert advertising campaign promoter, told of the successful campaign that he had conducted in connection with one of the branches of the clay industry. He made a rosy-hued picture of the editors of journals printing splendidly written promotion articles free of cost, and many other things that have been accomplished by appointing an able man to attend to the work of boosting the product by the support of the producers who are not in a position to do the same kind of work individually.

J. G. Jones, a pioneer in the use of the rotary kiln for lime burning for commercial purposes, next introduced his paper by the title "The Rotary Kiln in Lime Burning." Mr. Jones is a mechanical engineer of no mean attainment, and, with the pictures shown together with his explanation, a very good idea of his plant at Natural Bridge, N. Y., being that of the New York Lime Co., was shown. Every part of the lime making operation at this plant was exhibited and described, beginning with the quarry, the crusher, the kiln, the stacks, the boilers and their connection. He claimed for the rotary kiln that it is cooler, that a gas is first produced from the coal, and the advantages of the continuous process in making a very large output when running the plant entirely by gravity. The hot waste gases pass under the boiler so as to use them and secure the last bit of their heat value before they are finally lost up the stack. The old proposition is one of applied mechanics as directed to the saving of heat units and the reclamation of heat units that have been lost in other processes. Mr. Jones declared that the product of the New York Lime Co., as well as that of several others, had been increased and improved by the use of the rotary kiln.

H. W. Foster, of the Independence Inspection Bureau, gave an illustrated talk on "Fire and Accident Prevention." The talk was illustrated with lantern slides showing the unprotected way in which much of the machinery at manufacturing plants has been operated that resulted in heavy accident losses. Other pictures illustrated the care with which the same kind of machinery could be protected and defended and accidents in that way prevented. The speaker told of the economy of preparedness in the matter of taking care of accidents before they occur. The paper was very well received and proved to be quite an interesting number of the program.

The president announced that owing to the lateness of the hour and the engagements of nearly all of the delegates, the balance of the papers on the program would have to be read by title and referred to the committee on publication of the proceedings and such of the papers as were left over would make good reading matter after the convention.

With this announcement Willard Young, an expert powder man, was called to give his illustrated lecture on the "Properties of Blasting Explosives" as the closing number of the program. As the pictures were thrown on the slide the speaker talked about the completion of the explosives and pointed out the work of the particular elements and their comparison in the explosive field. The pictures were very entertaining and the lecture quite instructive.

So the greatest convention of the National Lime Manufacturers' Association, one replete with history making features, was brought to a close in peace and harmony with everybody ready for dinner, because it was just about 8 o'clock. That was some hard working convention, for not one member escaped for a minute during the entire proceedings.

THE ATTENDANCE.

The registry showed the following to be present and participated in the meeting:

W. E. Carson, Riverton Lime Co., Riverton, Va.
C. W. S. Cobb, Glencoe Lime & Cement Co., St. Louis, Mo.
Bernard L. McNulty, LaGarde Lime & Stone Co., Anniston, Ala.
J. M. Gager, Gager Lime & Mfg. Co., Chattanooga, Tenn.
Chas. C. Kritzer, The Kritzer Co., Chicago, Ill.
Ellis Soper, Chattanooga, Tenn.
F. C. Cheney, Cheney Lime Co., Chepultepec, Ala.
Chas. H. Claiborne, Union Mining Co., Baltimore, Md.
A. M. Glasgow, Tennessee Marble Lime Co., Knoxville, Tenn.
Edw. B. Page, Rockland-Rockport Lime Co., New York, N. Y.
W. E. Magner, Kelley Island Lime Co., Duluth, Minn.
J. A. Jacobsen, D. G. Cutler Co., Duluth, Minn.
Walter S. Sheldon, New Jersey Lime Co., Hamburg, N. J.
John J. Deely, Connecticut Lime Co., Lee, Mass.
T. Cumming, Cumming & Molitor, New York, N. Y.
A. D. Ferguson, Riverton Lime Co., Riverton, Va.
P. H. Dole, Improved Equipment Co., New York, N. Y.
F. B. Chapman, Finch, Pruyn & Co., Glens Falls, N. Y.
H. J. Russell, F. W. Wait Lime Co., Glens Falls, N. Y.
A. M. Holden, Genesee Lime Co., Honeoye Falls, N. Y.
E. W. Lazell, Edwards & Lazell, Portland, Ore.
Chas. Warner, Chas. Warner Co., Wilmington, Del.
H. B. Warner, Rock Products, Philadelphia, Pa.
C. E. Taylor, Chas. Warner Co., Devault, Pa.
Irving Warner, Chas. Warner Co., Wilmington, Del.
E. L. Conwell, Aluminate Patents Co., Philadelphia, Pa.
B. F. Lippold, Chas. Warner Co., Wilmington, Del.
H. J. Glewthrop, Merion Lime & Stone Co., Norristown, Pa.
Edgar H. Latham, Columbus, Ohio.
Ralph Dinsmore, Chas. Warner Co., Wilmington, Del.
J. King McLanahan, Jr., Blair Limestone Co., Hollidaysburg, Pa.
C. H. Vanderhoof, Vanderhoof Lime Co., Hamburg, N. J.
Henry M. Camp, Lime Service Bureau, Washington, D. C.
C. M. Lauritzen, Raymond Bros. Impact Pulv. Co., Chicago, Ill.
W. M. Cook, Raymond Bros. Impact Pulv. Co., Chicago, Ill.
E. T. Wolf, du Pont Powder Co., New York, N. Y.
J. S. Fanning, du Pont Powder Co., New York, N. Y.
F. W. Iredell, Chapman Engineering Co., New York, N. Y.
Fredk. H. Becket, Union Carbide Co., Niagara Falls, N. Y.
Ambrose Allen, Dutchess Co. Lime Co., Dover Plains, N. Y.
H. T. Horton, du Pont Powder Co., Lee, Mass.
Lowell M. Palmer, Jr., Palmer Lime Co., New York, N. Y.
G. A. Callanen, Crocker-Wheeler Co., Boston, Mass.
Chris C. Bye, Chas. Warner Co., Wilmington, Del.
Hugh McDonald, Palmer Lime & Cement Co., New York, N. Y.
M. H. Deely, Connecticut Lime Co., Lee, Mass.
L. C. Bonnot, Bonnot Co., Canton, Ohio.
J. H. Grimes, Blue Ridge Lime Co., Fletcher, N. C.
H. Gaggart, The A. & C. Lime Co., Canton, Ohio.
W. H. Price, The Urschel-Bates Valve Bag Co., Toledo, Ohio.
F. A. Daboll, Chas. Warner Co., Philadelphia, Pa.
A. H. Tennent, International Agricultural corporation, Buffalo, N. Y.
Chas. A. Ernstberger, Tomkins Bros., Newark, N. J.
Ambrose Tomkins, Tomkins Bros., Newark, N. J.
Fred W. Schultz, Engineering Record, New York, N. Y.
G. R. Shenberger, J. E. Baker Co., York, Pa.
James B. Doble, J. E. Baker Co., York, Pa.
V. M. Frey, J. E. Baker Co., York, Pa.
W. S. Longnecker, J. E. Baker Co., York, Pa.
Karl Langenbeck, Lime Service Bureau, Washington, D. C.
W. H. Bradley, Duff Patents Co., Pittsburgh, Pa.
J. E. Baker, J. E. Baker Co., York, Pa.
O. F. Perry, New York, N. Y.
C. Doherty, Rockland, Me.
Wm. Arthur McCoy, Perth Amboy, N. J.
J. K. Marshall, Law Reporter, 154 Nassau St., New York, N. Y.
H. V. Briggle, O. E. Barber Mining & Fertilizer Co., Canton, Ohio.
Warren E. Emley, Bureau of Standards, Pittsburgh, Pa.
Henry D. Spackman, Henry D. Spackman Eng. Co., Philadelphia, Pa.
Peter Martin, Ohio & Western Lime Co., Huntington, Ind.
W. B. Chapman, Chapman Engineering Co., New York, N. Y.
W. L. Heisey, High C Lime Co., Rheems, Pa.
G. & W. H. Corson, Plymouth Meeting, Pa.
Jacob L. Tyson, Bridgeport, Pa.
Richard McCoy, Powhatan Lime Co., Strasburg, Va.
J. F. Pollock, Ash Grove Lime & Portland Cement Co., Kansas City, Mo.
O. C. Barber, Barber Mining and Fertilizer Co., Akron, Ohio.
Burton K. Harris, Saylerville, R. I. R. F. D.
Herbert Harris, Saylerville, R. I. R. F. D.
Harold Veblen, Superior Mfg. Co., Superior, Wis.
John J. Porter, Security Cement & Lime Co., Hagerstown, Md.
E. R. Berry, General Ceramic Mfg. Co., Boston, Mass.
Herbert W. Dean, Cheshire Lime Mfg. Co., Cheshire, Mass.
Geo. A. Reynolds, Cheshire Lime Mfg. Co., Cheshire, Mass.
A. H. Lauman, Natl. Mortar & Supply Co., Pittsburgh, Pa.
Wm. B. Irvine, Knickerbocker Lime Co., Philadelphia, Pa.
T. L. Waldie, Palmer Lime & Cement Co., New York, N. Y.
Wm. J. Grove, W. J. Grove Lime Co., Lime Kiln, Md.
Ward McLanahan, Blair Limestone Co., Martinsburg, W. Va.
Fred K. Irvine, ROCK PRODUCTS, Chicago, Ill.
Phil. Dauernheim, Glencoe Lime & Cement Co., St. Louis, Mo.
H. S. Gray, J. B. Speed & Co., Louisville, Ky.
E. J. Heimerdinger, J. B. Speed & Co., Louisville, Ky.
C. A. Burgess, Ingersoll-Rand Co., New York, N. Y.
Wm. Eugene Conkling, Blairstown, N. J.
Luther Keller, Scranton, Pa.

Municipal Contractors Meet.

The Seventh annual meeting of the Illinois Association of Municipal Contractors is now in session at the Hotel LaSalle. At the meeting held Thursday afternoon a number of interesting papers were read and new officers were elected.

Perry Fletcher was elected president for the ensuing year. Four vice-presidents were chosen in the persons of J. A. Meyers, East St. Louis; P. H. Tiernan, McComb; T. W. Keys, LaSalle, and A. W. Eisenmayer, Granite City. Joseph Gund was re-elected secretary and treasurer. The executive secretaryship was again awarded to C. E. Mateer, who makes his headquarters in Chicago.

Thursday evening was set aside for the annual banquet. With a few interesting remarks President Fletcher introduced Bert Swett, of the Lehigh Portland Cement Co., as toastmaster of the evening. It was an evening given over to pleasure, and the number of speeches given were all of an entertaining nature. Among the speakers were "Billy" Hill, East St. Louis; Mr. Faulkner, East St. Louis; George Foulkes, Foulkes Construction Co., Terre Haute, Ind.; Fred Luckey, paving brick agent, Chicago; Mr. Jensen, contractor, of Pekin; George A. Olsen, Rock Products, Chicago; Harry Eckles, Lehigh Portland Cement Co., Chicago; Mr. Gibney, Universal Portland Cement Co., Chicago; Mr. Wagner, of Racine, Wis.; Mr. Johnson, Barrett Mfg. Co., Chicago.; S. A. Tuttle, Decatur, Ill.

Holran Stone Co. Installs Woodford System

It Is Believed that Central Control of Cars Will Increase Output and Effect Economical Measure.

At the plant of the Holran Stone Co., Maple Grove, Ohio, may be viewed what is claimed to be the last word in superb equipment for the handling of stone from quarry to plant. This important phase in the production and consequent marketing of the products of the quarry is one which has received untiring attention and consideration from those qualified to put forth the best thought and accumulated intelligence on the subject, whether by actual quarrying experience or whose chief interest is the supplying of quarry equipment.

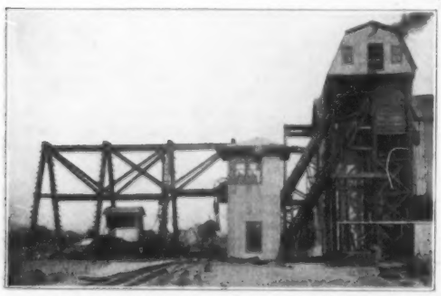
To this feature the general manager of the Holran company, Geo. W. Patnoe, who is an expert in quarry development and whose extensive knowledge of quarry management has long been recognized, has devoted much of his energies in the quest for a fundamentally economical handling system,

PLANT OF HOLRAN STONE CO., MAPLE GROVE, OHIO.

and the recent installation of the Woodford system of central control of quarry cars will bring the output up to 3,000 cubic yards every 10 hours without, it is claimed, increasing the cost of operating the system as a whole.

Theoretically, the range of application of the Woodford system is very wide, because cars of any size and description may be controlled in this manner. It has been highly successful, it is said, as applied to the haulage of steam-shovel-loaded material between pit or quarry and plant, as in stone and rock quarries, surface mines, sand and gravel pits, clay pits, etc., or in the transfer of material between two or more fixed points. In short, it is said to be applicable to any surface haulage proposition with certain limitations, and especially applicable to the haulage or transfer of material on steep grades. The reason for this is that with the Woodford system the load is placed on the tractive wheels. The company claims that this greatly increases the traction without increasing the power required to propel the load or the motive power.

Stripping of dirt at the Holran quarry is accomplished with a No. 18 revolving Bucyrus steam shovel, dirt being transported to the spoil bank with cars and locomotive. Blast holes are drilled with Cyclone drills of the well-driller type, operated with gasoline engine. The company is operating a 40-foot face which extends and is being worked three sides of the quarry, making practically a circular face. The stone is then blasted with 40 per cent dynamite and loaded into 10-ton cars with 95-ton Bucyrus steam shovels. It is transported from shovels to crusher plant with 10-ton cars, equipped electrically and operated from a central



CONTROLLING TOWER, CRUSHER AND ELEVATOR—PLANT OF HOLRAN STONE CO.

WOODFORD MOTOR-DRIVEN CAR AT PLANT OF HOLRAN STONE CO.

station by the Woodford system of central control, up an 8 per cent grade.

The steepest grade to which the Woodford system can be applied is 15 per cent. On cars with all the weight on the tractive wheels, the wheels will slip on a snowy rail when the grade reaches 13 per cent, on a wet rail at 19 per cent, and on a dry rail at 23 per cent. This, of course, means where the track is straight and in perfect condition otherwise. Practically, however, it is impossible to equip cars with motors for grades steeper than 15 per cent on account of limitations of space, etc. Cars have been operating successfully winter and summer on 12 per cent grade without accidents due to runaways or from the inability of the cars to climb the grade. However, when there is heavy snow or a certain condition of frosty rail, the wheels of the cars will slip on these grades, necessitating that the rails be cleaned off before the first car makes a trip up in the morning when beginning work.

Construction of Cars.

The cars of the new equipment of the Holran Stone Co. are of the side-dump type and are of extra heavy construction. They are standard gauge, have a six-cubic-yard capacity box on which eight cubic yards can be loaded if desired. Each car weighs 10 tons empty and 20 tons when loaded to capacity. All the latest ideas are carried out in the construction of this car, with some new features, one of the most important of which is Mr. Patnoe's idea of having the box supported on springs other than the journal springs, which serve as shock absorbers to take up the shock of dropping the stone from the shovel dipper into the car. This greatly increases the life of every part of the car and therefore promises to be a great success. Also, the bumper, an M. C. B. drawbar coupler, is located at the center of gravity of the loaded car, where it belongs. It is attached to the bottom of the car box, standard M. C. B. construction being followed as closely as possible. Each car is equipped with two 25-horsepower D. C. series crane motors directly geared to the axles and swung on cast steel axle bearings which are bolted to the motors. The motor frames are also cast steel, as are all other castings making up the car equipment. The gears are covered by a cast steel gear case.

Direct current has always been used in connection with the Woodford system, for, while it may be possible to work out a system using alternating current, this has never been done because direct current is always available or can always be made by rotary converters, which are inexpensive and highly efficient.

All the apparatus used in connection with the Woodford system is manufactured by the Woodford Engineering Co., with the exception of cars and motors. All descriptions of cars having truck capacities ranging from 14,000 to 120,000 pounds are designed and equipped by the Woodford Engineering Co. to meet all conditions and requirements. The minimum track gauge is 36 inches because it is impossible to mount motors on cars having a narrower gauge.

Cars for which the apparatus has been standardized are the following:

Three yard, 36-inch gauge regulation contractor's dump car.

Six yard, standard gauge regulation contractor's dump car.

Six yard, standard gauge extra heavy contractor's dump car.

Ten yard, standard gauge regulation contractor's dump car.

Ten yard, standard gauge extra heavy contractor's dump car.

Flat cars, 36 inch and standard gauge, decks any dimensions.

The standard apparatus can, however, be used on any other types of cars.

For the conductor rail a light track rail is used. This is spiked to wood blocks for 220 volts (the pressure usually used) and is located at the center of the track. The wood blocks give sufficient insulation for all practical purposes and are much more substantial, besides costing only a fraction of what other insulators cost.

Power Required.

The power required by the Woodford system varies greatly with the conditions and requirements and it, therefore, has to be determined in each case. The formulae used to determine the power required by any car are taken from Haswell. These formulae have proven to give very good results as applied to the Woodford system. Knowing the weight of the car and load, the speed, and the percentage of grade, the horsepower is determined as follows:

On an inclined plane

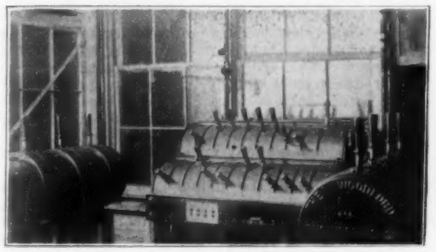
$$H=\frac{.0128\ (5\pm 14h)WS}{3}$$

, where H equals horsepower, W is the weight in tons, S the speed in miles per hour, and h is the percentage of grade expressed as a whole number.

On a horizontal plane, h becomes zero, and the formula becomes

$$H=\frac{.064\ W\ S.}{3}$$

It must not be overlooked that just as much power is generated by a loaded car running down an incline as is required to run it up the same



INTERIOR OF CONTROLLING TOWER, HARLAN STONE CO., MAPLE GROVE, OHIO.

incline with the same load. Hence, the same motor equipment is required on a car which brings the material down the grade as would be required on the same car to take the same load up a like grade. This is where the dynamic brake is used, for nothing is more essentially a part of the Woodford system than the dynamic brake.

At the Holran quarry the cars are dumped into a large cast steel hopper from where they are conveyed to the crusher by a large cast steel conveyor, operated by a friction device, which gives the operator absolute control over the feeding of the crusher. The crusher is of the movable jaw type ordinarily designated as the Blake type. This machine has an opening of four feet by five feet and a capacity of ten tons per minute. Stone from this crusher is discharged into a large bucket elevator, 115-foot centers. Each bucket has a carrying capacity of one-half cubic yard. This elevator discharges into a bin or hopper, where the stone is fed into four other crushers of varied sizes, which reduces the stone to sizes required. Elevating and screening is done as in ordinary plants of this class.

Limitations.

Practically, there are limitations to the application of the Woodford system as is the case with every system. In the first place, the Woodford system is essentially a surface haulage proposition because the cars should be in sight of the operator at least a part of the time in order to be controlled properly. It follows that, except in certain cases, as in the transfer of material between two or more fixed points, it cannot be applied to underground haulage. In the second place, the Woodford

LOADING ROCK INTO 10-TON WOODFORD CAR AT QUARRY OF HOLRAN STONE CO.

system is not a hand-loading proposition, except in certain cases, because hand-loading is usually slow loading. With the Woodford system, it is claimed, a small number of cars are capable of handling a large quantity of material, hence, the expense usually prohibits its use on hand-loading propositions, the exceptions being where hand-loading is not slow loading.

The cost prohibits the use of the Woodford system on quantities of material less than 10 tons per hour, but there is hardly any limit to the quantity of material that it can handle as a maximum.

As a limitation to the distance of haul, it might be fixed at 50 miles, because there is no reason why it could not be applied to such distances under certain conditions.

Capacity.

The capacity of the Woodford system is only limited by the number of cars that can be run over a given track. Under ideal conditions one man can handle 1,500 tons per hour on a mile haul. Under average conditions one man can handle 750 tons per hour on the same haul. The same operator can dump the cars in most cases.

The minimum capacity for which it pays to use the Woodford system is 10 tons per hour.

Three-yard, 36-inch gauge cars are usually used for capacities up to 50 tons per hour where the average distance of haul is not greater than one mile.

Six-yard standard gauge cars are usually used for capacities from 50 to 300 tons per hour where the average distance of haul is not greater than five miles.

Ten-yard single truck standard gauge cars are used for capacities from 200 tons per hour up, and on any distance of haul.

INDIANA STATE STONE CLUB HOLDS INFORMAL MEETING.

The members of the Indiana State Stone Club met at the Claypool hotel in Indianapolis, Ind., February 5th and 6th and discussed matters of considerable interest to the association. It was decided that, as some of the committees were not ready to report, it would be found advisable to hold further session within about 30 days, therefore all matters of business were postponed until that time and the meeting resolved itself into an open session with the associate members who represented the various types of machinery, etc.

Upon this occasion, the splendid good fellowship and cordial, friendly spirit which has always dominated the conventions in the past was strongly in evidence. A banquet was held on the evening of the fifth which was enjoyed by all, the more so because it was of an informal nature and its pleasant features were enhanced by a splendid cabaret entertainment.

President O. H. Binns acted as toastmaster, with A. Acton Hall and Frank D. Lyon, president and secretary respectively of the Interstate Stone Manufacturers' Association, as the guests of honor. Mr. Hall stated that the Interstate Manufacturers' Association was heartily in accord with the program and policies of the Indiana State Stone Club. He added that his association had aimed more particularly to get down to a line of good fellowship and a degree of relationship one to another whereby each member was taken absolutely at his word. "We have got to get together and work," he said, "and let little selfish ideas drop."

Judge Darrell, of the Newton County Stone Co., stated that he was glad to see that the members were putting more co-operation into the stone business. He thought the members should get together and see that the roads are built in such a way as to reflect credit upon the association and the materials it represented. He believed that the roads should be constructed on the economy basis so as to lessen the expense to the farmers and other users generally.

Mr. Lyon spoke briefly of the work which the Ohio association was doing and expected to do. "It is absolutely necessary," he said, "that there shall be some central positive control, and we cannot vest highway improvement in the hands of so many trustees." He went on to explain how the roads had been built in the state of New York for a number of years and believed that the next two or three years would see a policy of federal aid adopted.

President Binns said that he believed the association as a whole agreed fully with Mr. Lyons. He added that there must be uniformity in the matter of specifications and went on record as an unqualified advocate of state supervision of public highways.

Many other of the active and associate members were called upon for their views and responded in such a way as to indicate the active interest each is taking in road building affairs.

The open meeting on the afternoon of the sixth was well attended by both active and associate members. The well drilling industry was represented by Bruce Z. Good, secretary of the Loomis Machine Co., Tiffin, Ohio, and Geo. C. Armstrong, of the Armstrong Manufacturing Co., Waterloo, Iowa. Mr. Armstrong had a small working model of the Armstrong drill in his suite in Parlor C which was viewed by many of the stone producers. Frank Russell, of the Ingersoll-Rand Co., Cleveland, who is a familiar figure at all meetings of the Stone Club, was present as usual, extending the glad hand to his many friends in the industry. S. C. Haines, of the Main Belting Co., Chicago, was there, and he brought along the hospitality which is so inseparably a part of Mr. Haines' nature. All the delegates were glad to again come in contact with the genial exponent of Leviathan belting. Manager Louis Hellman, of the Chicago office of Orenstein-Arthur Koppel Co., talked interestingly on the subject of industrial narrow and standard gauge railway materials. J. O'F. Clark, Jr., chose a very hard subject for discussion—manganese steel. Mr. Clark represents the Edgar Allen American Manganese Steel Co., and demonstrated that there was no hard feeling between himself and his hard-headed material. The crusher industry was ably represented by C. G. Milburn, the "boy wonder" of the Austin Mfg. Co., Columbus, Ohio, and J. M. Thistlethwaite, of Symons Brothers Co., Chicago. No meeting can be had of the stone producers with any degree of companionship without Messrs. C. A. Spensley, of the E. I. du Pont de Nemours Powder Co., Chicago; G. T. Garland, of The Aetna Powder Co., and The Miami Powder Co.; F. J. Burton, of the Burton Powder Co., Pittsburgh, and J. J. Black, of the Hercules Powder Co., Chicago. There is always an explosion of good nature when these boys get together, in which every member of the association is an amused spectator.

Competition in Road Materials.

The aggressiveness of individual sales departments in the cement, paving brick and crushed stone industries, promoting the subject of materials for the building of roads, seems to wax more enthusiastic than is desirable, inasmuch as these various industries are resorting to the use of popular magazines, all the "good roads" papers and other periodicals with discussions directed at the public as to the "best materials;" and these discussions are found to be nothing more or less than "mud throwing tactics," losing all essentials of salesmanship, in an effort to convince the public that one material is so much better than another—precedent thereby losing forever its influence.

There is no doubt in the minds of the road construction material interests of this country that the cement, macadam, or brick constructed road has always been a good road; there is no doubt about any road properly constructed with adequate foundation where materials are honestly and efficiently provided; there is no doubt about the cement surface combination road, or the brick road with concrete foundation, or the macadam surface road on either concrete or crushed rock foundation; nor is there any doubt of the merits of a road constructed from a combination of any of these materials wherein the construction work engages competent road builders with the ulterior motive of permanency of the road, rather than to have the construction of such a road provide an upkeep pension for the material manufacturers in that neighborhood who are interested in the first construction.

The great industries composed of cement manufacturers, quarrymen, brick manufacturers, crushed stone operators and gravel producers, all looking for the same business, seem to have arrived at such a degree of enthusiasm about the superior qualities of their particular materials that they would rather use "Billingsgate" than common sense as arguments to create the public interest that should help to secure the business. We suppose it may be all right to make a circus parade noise in the magazines about materials in order to stir up the interests of the people as to the desirability of the Lincoln Highway as fulfilling a nation's necessity, but what is to be gained from the source of one branch of the material industry besmirching the good name of the other in a campaign promoting specific materials applicable in the Lincoln Highway's construction.

If anybody harbours doubts that the old government roads were worth while they should consult with their grandfathers and grandmothers, for we are sure they will be informed that the old stage coach transportation of an earlier period of our country's development was better proportionately, considering the amount of territory traversed, than some of the railroad traffic facilities of the present day; and the reason is that the government roads of the old days were good roads; they were not the automobile roads of our present cities but they answered their purposes well.

The necessity of road making now compels a different and perhaps a better type of road to meet more heavy traffic requirements, and it is all a huge joke to think of cement manufacturers, brick manufacturers, crushed stone and macadam interest aligning themselves against one another, rather than indicating a spirit of good fellowship embodying co-operative principles for the benefit of the entire road building industry; or we might say in that new department of the national commerce which calls upon manufacturers for efficient materials to be utilized in the rapidly advancing highway construction element now beginning to fulfill a requirement based on the nation's progress. Every different efficient material industry, as a part of the building industry can receive a fair proportion of the business and for the good name and the prosperity of the whole industry let us urge the use of business reasoning for the elimination of the present campaign of "throwing mud."

The Largest Sand and Gravel Plant in the World.

It is not generally known that the Esson Sand & Gravel Co., of the Stock Exchange Building, Chicago, will shortly start constructing a sand and gravel-washing plant which without doubt will be the largest plant of this kind in the world.

Mr. Esson recently signed a contract with Raymond W. Dull, of the Raymond W. Dull Co., of Chicago, for the construction of the plant.

The plant will be located about two miles north of Algonquin, Ill., on the Chicago & Northwestern Railway. A survey of the property and contour maps have been made, as well as test holes to determine the amount of concrete material, and the results show about 20,000,000 yards available.

RAYMOND W. DULL, WHO DESIGNED THE PLANT OF THE ESSON SAND AND GRAVEL CO.

A very curious natural formation of the hills permits a side track to run through the center of the property along a ravine. The general slope of the ravine is remarkably near the ideal slope for gravity tracks. The material is also located on both sides of the plant location, which makes a short haul to the plant.

The storage bins for the plant will be made of reinforced concrete. Loading tracks will be located on both sides of the plant. The material will be excavated with steam shovels and carried to the plant by Dull's sectional field conveyors. The field conveyors will deliver into a large inclined conveyor which will carry the material to the top of the preliminary crusher house, where the oversized material is separated from the aggregate and crushed. From the crusher house the material is carried by a large belt conveyor to the top of the washing plant, where sixteen Dull improved inclined conical gravel washing screens wash and size the material into the different sizes.

The plant will be electrically driven throughout and will be strictly up to date in every way. The plant will have a capacity of from 80 to 100 cars of material per day.

MOTOR TRUCK DELIVERY SYSTEMS IN BUILDING MATERIAL INDUSTRY THAT ARE PROVING SUCCESSFUL AND ECONOMICAL.

MOTOR TRUCK DELIVERY OF BUILDERS' SUPPLIES IS NOT EXPERIMENTAL

Specific Application Has Proven Many Successes for White Motor Trucks in Service of Building Material Companies.

The question of the practical and economical adaptation of the motor truck to the building material business was for many years considered wholly an experimental proposition. Many leading dealers have studied this phase of their business with a view to the solution of all questions involved. In nearly all cases it is found that in the building supply business successful motor truck delivery calls for exceptional machines that will stand the roughest usage for the longest period. In making a canvass of this proposition it is found that the White motor truck has a record of many successes. Every phase of the truck question we find has had careful study where consideration was given to the motor truck as an element to increasing the efficiency of the delivery department and the providing of economy from the same source.

The Patent Vulcanite Roofing Co., of Chicago, is successfully using a five-ton White truck in its delivery service and this truck is reported by that company as giving complete and satisfactory results. The experience in connection with the use of this truck covers a period of over two years and that company is now preparing to install another five-ton White of the same type. The use of this truck is shown in the accompanying illustration, preparing to carry a heavy load of patent Vulcanite roofing to a local dealer.

It is experiences with motor-truck delivery such as that of the Patent Vulcanite Company that is marking the successful advancement of motor truck delivery systems to the building material business in Chicago, and the same thing applies in the use of the truck in other cities. Actual experience counts much for the further adoption of the motor-driven vehicle as a factor making for economy and efficiency in the transporting of heavy material in this particular industry.

In Cleveland, Ohio, White motor trucks are giving successful service for the Cleveland Builders' Supply Co. and the Cleveland Macadam Co. The Cleveland Builders' Supply Co. began the use of the White motor truck in their delivery department more than two years ago with one five-ton truck and they recently added to their equipment two White power-dumping trucks. These trucks handle all kinds of materials, over streets and country roads, over hills, over loose earth, where construction work is in progress, always with thorough dependability and dispatch. ROCK PRODUCTS has taken occasion several times to ask users of motor trucks in the builders' supply lines to express their opinions in writing on the subject of the use of trucks, and we have received from the Cleveland Builders' Supply Company a communication in which they state: "In reference to White trucks, we wish to say that we purchased our first five-ton White truck, a flat body, in 1911. This truck is still running in very good shape. In 1913 we purchased two additional five-ton Whites, both being dump bodies. They proved to be very economical in consumption of oil and gasoline, which is a big item in motor truck delivery service. We are very well satisfied with our trucks and the service given us by the White company."

The experience of the Cleveland Macadam Co. is stated with an emphasis of the fact that the White truck in its service earns $2,000 in four and one-half months. In relating this experience the Cleveland Macadam Co. says: "Figuring the cost of delivering our material at the delivery price which we have always paid for teams, and which cost we have credited up to our truck as hauling expense during the period of four and one-half months, we have actually made a profit of $2,000 over and above the entire cost of operation. We have not figured out of this any amount for depreciation. There is probably no other kind of business in which a truck has more opportunity to show a profit, as we make certain charges within certain distances for delivering our material, and our truck carries a full load every trip."

In the experience of Peter McCabe, builders' supplies dealer at Albany, N. Y., there is recorded another success as the use of a White five-ton truck. In relating this experience for the benefit of ROCK PRODUCTS' readers, Mr. McCabe said: "In September, 1911, I purchased a five-ton White truck and was so well pleased with its performance that in May, 1912, I added to the service a three-ton White truck. Both are used to good advantage, running every day through the severe winter months. Handling, as I do, a large quantity of lime, cement and other building supplies, and prior to September, 1911, depending solely on horses for my delivery, I know that I am in position to state that for economy, reliability and efficiency the motor truck has the horse beaten and I will further state that after a thorough experience with the White truck I am ready to state that the White truck is an entirely satisfactory proposition for use in the delivery of builders' supplies."

Symons Brothers Company, manufacturers of disc crushers, gyratory crushers, screens, etc., Old Colony building, Chicago, Ill., have issued a circular to the trade setting forth the merits of the Symons pulsating screen. In this circular attention is called to its design, making clear the three essentials to the success of any screen. Points brought out are amply illustrated with halftone engravings.

* * * *

The Crown Point Spar Company, 663 Broadway, New York, has issued a new catalogue of Micaspar Crystals, formerly granite crystals. Changing of the trade name is declared in the catalogue to be an advantage, both for the protection of the patrons and manufacturer. The booklet includes many illustrations of the application of this product to various buildings throughout the United States, together with much other information of value to building material dealers.

* * * *

T. L. Smith & Co., of Milwaukee, Wis., has issued Smith Mixer Catalogue No. 300, as a New Year's greeting. The new catalogue is handsomely printed and contains 64 pages of illustrated information regarding the Smith line for 1914. In these pages are shown several changes over last year's machines.

* * * *

A handsome new catalogue has been issued by the Ruggles-Coles Company, New York and Chicago. It contains 50 pages of information and illustrated descriptions of the Ruggles-Coles dryers. Every type of dryer manufactured by this company, for every different purpose, is illustrated and described.

* * * *

The Cleveland Material Company just handed ROCK PRODUCTS a souvenir pocket note book done in real seal. It is just the proper thing for making order memoranda and other things and will pay its way as well as being a handy accommodation.

* * *

The American Steel & Wire Company, 72 W. Adams St., Chicago, Ill., has prepared a number of interesting little booklets which will be of value to agriculturists. These booklets are entitled, "Illinois, Seat of Permanent Fertility," "Making the Farm Pay," "Protection Against Hog Diseases by Using Sulphate of Iron," "Farmyard Manures," "Grasses and Other Forage Crops," and "Kaffir."

WHITE FIVE-TON MOTOR TRUCK IN SUCCESSFUL SERVICE WITH PATENT VULCANITE ROOFING COMPANY, CHICAGO.

HOW TO GET BRICK AND TILE OF GOOD COLOR.

A. T. Ackworth, writing in The Brick and Pottery Trades Journal, of London, expresses his opinion on the above subject as follows:

Architects and others are still clamoring for bricks and tiles which are full of accidental tones and tints, whilst others demand as uniform a color as possible. Now it is impossible to make the same brick satisfy both these kinds of people and all that can be done is to make a separate kind of brick for each. There is also a large number of builders whose chief requirement is a brick which has a good color, that is to say, one which is free from scum and flame flashes. The discolorations of bricks are many and various and their causes are too numerous to be given in detail here, but some of the most important may be briefly stated.

The majority of discolored bricks and tiles are spoiled in the earlier stages of the burning. In the first place, if bricks are placed in a continuous kiln and are not completely dried before the heat begins to act on them, the bricks or tiles will be discolored with a kind of white or greyish scum. This is due to the hot gases in the kiln undergoing a partial condensation when they come into contact with the cool, fresh goods and the water deposited on the latter from the gases will cause a corrosion of the clay which cannot afterwards be removed. The only way to avoid this defect is to make the goods so hot with pure air that they will not allow the hot gases from the kiln to condense on them. This is the primary object of those numerous arrangements of patent flues in continuous kilns—arrangements which may be excellent in many ways, but unless they are rightly understood and properly used they can never afford any satisfactory result. If the goods in the kiln are first heated to such a temperature that no steam can condense to water when brought into contact with them, the defect will not occur. A higher temperature than this is unnecessary, and it is sufficient if all the bricks and tiles have a temperature above 100 deg. C. or 212 deg. Fah. In practice, however, the temperature in various parts of the kiln varies slightly and it is, therefore, far better to use a thermometer to ensure every part of the kiln being at 120 deg. C. or 248 deg. Fah.

The easiest way to warm the goods to this temperature is to draw air through the cooling chambers and to deliver this hot air to the freshly set goods. At first it may be necessary to mix it with some cold air so as to prevent the goods being heated too suddenly, but afterwards it should not be difficult to use simply hot air; this will depend on the "tenderness" or otherwise of the goods. When the supply of such air from the cooling chambers is insufficient, supplementary methods must be found for heating air in sufficient quantity. One of these consists in putting flues over the arch of the kiln; another way consists in putting flues under the floor. Air is drawn from the atmosphere through these flues and is heated to any desired temperature, short of that within the hottest part of the kiln, and in unlimited quantity. In this way it is easy to warm the freshly-set bricks and tiles as much as may be desired and to avoid all discoloration due to condensation.

Some bricks and tiles are discolored by substances which exist in the clay itself. If these are in the form of soluble salts such as gypsum or sodium sulphate, the defect may be remedied by the addition of a little barium carbonate which will make the gypsum quite insoluble. Its action on the sodium sulphate is more speculative; barium sulphate (which is insoluble) will be formed, together with sodium carbonate which is less soluble than the sulphate, so that the improvement will probably not be so noticeable. As, however, gypsum is the chief cause of difficulty its being rendered insoluble will usually do all that is needed. If the trouble is caused by sea-salt, there is no direct remedy; it is impossible to wash the salt out of the raw clay and all that can be done is to heat the clay in the kilns until the salt either volatilises or melts and combines with the clay. Some clays will lose shape if treated in this way, but a skilful burner can raise the temperature rapidly, retain it at its height for just sufficient time to ensure the combination of the salt and then cool it down to a point of safety, before the bricks or tiles have had time to twist or warp.

A dark colored patch, which is seen when the brick is broken to be part of a dark core or heart, is a characteristic of too rapid a heating at a temperature of dull redness. Some clays require abnormally long heating at a temperature equivalent to the dullest red heat before all this dark colored matter is fully burned away, but if the temperature is allowed to rise too rapidly before all the dark portion has gone, it will undergo a partial fusion and no further heating will then remove it completely. The only way with clays which tend to show this defect is to arrange a number of bricks or tiles so that they can easily be removed during the burning, and to take one of these "trials" out at regular intervals, break it and then examine it to see how much of the heart has been burned away. As the heating progresses (if the temperature does not become excessive) the heart in the successive trials will be noticeably smaller and eventually may disappear entirely or become so small as to be unimportant.

"Flashing" is a form of discoloration which is chiefly due to the flame playing directly on to a piece of brick or tile. If the flame is oxidizing (that is, if it contains plenty of air) it will do but little harm in a brick or tile except to make the color rather deeper, but if the flame is reducing (that is, if it is greedy for oxygen or air) the discoloration may be serious, as the greedy flame may withdraw oxygen from the oxide of iron present, reducing it to a lower oxide of dark color and ready fusibility. This lower oxide soon combines with the clay to form a slaggy material which may show itself as a dark, glossy film or as a semi-molten patch. If it is necessary to avoid these patches it is requisite to erect some sort of protecting wall between the goods and the flame. This wall usually takes the form of bricks which will afterwards be sold as of common quality, or they may be used over and over again in the kiln. In a few cases, they may even form a permanent part of the kiln itself, like the "bags" in a round down-draught kiln. As the flashing is due to the direct contact with the flame, anything which will prevent this contact will prove remedial. Paper which has been painted over with clay slip and then laid on the goods has proved quite satisfactory in the case of chimney pots of large size which have to be placed near the top of the kiln and in an exposed position. The paper burns away, but its ash is sufficiently coherent to keep the clay together and to form a screen from the flames. This screen crumbles to pieces when touched during the emptying of the kiln.

Clays which contain much chalk or "lime" are always difficult to burn without discoloration. One reason for this is the fact that such clays should burn almost pure white, and will usually do so if there is sufficient lime present and the kiln is well managed. One common cause of discoloration is sulphur in the fuel used in heating the kiln, particularly when a continuous kiln is employed. To some extent the trouble can be avoided by the use of coal low in sulphur, but this is only a limitation rather than a removal of the difficulty. In some instances it is made worse by defective firing, and can then be remedied by a more skilled or conscientious burner who will take care to keep the correct atmosphere in the kiln. The excess of air which is usually found in continuous kilns which are being fired tends to cause the production of sulphuric acid by the combustion of the sulphur in the coal. This acid combines with the lime in the goods and forms calcium sulphate. To avoid this the excess of air must be avoided as far as possible, but this means that the firing must be slower unless the kilns are heated by gas or by some species of grate which is under exceptionally good control. By the additional use of a smoky fire or, what is the same thing, a reducing atmosphere inside the kiln, will largely, if not entirely, avoid the discoloration due to sulphur. Unfortunately this alternate use of an oxidizing and reducing fire is not easy in a continuous kiln, but it can be managed by a skilled burner who will lower his damper slightly and work with rather heavy fires at such times as he requires the reducing effects.

CLAY MEN PUBLICITY CONVERTS.

Determined hereafter to make publicity one of the big features of their work, the 125 clay products manufacturers who attended the thirty-third annual convention of the Iowa state association, held recently, have declared their convention work most successful.

The ever increasing need of publicity as a means of promoting the clay products manufacturing industry in Iowa was made the keynote of the convention, almost every address dealing with some phase of the publicity question. V. F. Hayden, of Des Moines, spoke on the subject of "Advertising: How It Can Be Used Profitably to Increase the Business of the Individual Manufacturer." B. C. Keeler, of Mason City, was elected president of the association; William Goodwin, of Des Moines, was elected vice-president; George Schnurr, of Kalo, elected treasurer, and C. B. Platt, of Van Meter, re-elected secretary.

Illinois Clay Manufacturers Meet.

The thirty-sixth annual convention of the Illinois Clay Manufacturers' Association was held in Hotel Beardsley, at Champaign, Ill., January 22-24. At the opening session President Mamer delivered an address, in which he urged greater publicity from the standpoint of both individuals and as an association. This address was followed by reading and discussion of papers pertaining to the clay industry.

The greater part of Friday, January 23, was devoted to the reading of papers on and the discussion of the open-price policy. A special committee composed of D. C. Haeger, J. L. Buckley and Iverson C. Wells was appointed to make an investigation and report at the special meeting to be held at Hotel La Salle in Chicago, March 19, 1914, at which meeting the open-price policy will be the theme.

The annual banquet was held in the evening, several members of the faculty of the Illinois University being guests and participating in the evening's program, which was a very creditable one.

On Saturday the following officers were elected:

President—D. C. Haeger, president Haeger Brick & Tile Co., Aurora, Ill.

Vice-President—J. C. Meyers, Alton Brick Co., Alton, Ill.

Secretary—A. E. Huckins, president Sheldon Brick & Building Supply Co., Urbana, Ill.

Treasurer—George Walters, Chattsworth, Ill.

After the election of officers the following committees were selected: Reorganization—D. C. Haeger, Aurora, Ill; J. L. Buckley, Davenport, Ia., and Iverson C. Wells, Chicago, Ill. Legislative—J. W. Stipes, Champaign, Ill.; Wm. Hammerschmidt, Lombard, Ill., and Frank Butterworth, Danville, Ill. Resolutions—D. C. Haeger, Aurora, Ill.; Iverson C. Wells, Chicago, Ill., and L. H. Lambert, Beaverville, Ill. Cost Accounting—Douglas Stevens, D. C. Haeger and Frank Butterworth.

The convention being held during the closing sessions of the ceramic short course at the University of Illinois, at which there were about 50 attendants from various sections of the country, many delegates to the convention were visitors at the ceramic department and were made to realize the value of the course and the work which was being accomplished.

LOUISVILLE CLAY NEWS.

Louisville, Ky., Feb. 21.—One of the busiest lines on the list when things are active is brick—one of the dullest when things are dull; and they are very dull just now in all branches of building and construction work in this section, as usual in mid-winter. Only one of the local plants is operating, the others being closed down with ample stocks on hand to last until activity in building begins again in the spring.

Most of the brickmakers experienced a good year in 1913, although the activity in building fell considerably below that of 1912, as indicated by the fact that building permits for 1912 amounted to $6,542,710, while those for 1913 amounted only to $4,053,060. On the other hand, the fact that several large buildings credited to 1912 in the list of building permits were really completed in 1913, notably the Starks and Great Southern office structures, and that the number of permits issued in 1913 was 2,425, as against 2,331 in 1912, shows that the year just past was far from being one of idleness, in spite of the apparent falling off in building activity.

The year just begun is expected to be one of very satisfactory activity by the brick manufacturers, as well as the sewer pipe and tile people, the former having a number of larger buildings in sight, including nine schools, to be built out of the proceeds of a million-dollar bond issue approved last November, as well as a number of other good-sized structures, while the latter look for a good volume of sewer work.

PIONEER BRICK MANUFACTURER DIES AFTER SHORT ILLNESS.

Alexander Burke, a pioneer brick manufacturer and a leading figure in Chicago's building operations for more than twenty-five years, died February 20, after a short illness. He was born in County Cork, Ireland, June 5, 1842. He came to this country when a boy, living in Pennsylvania and Kentucky for a short time before settling in Chicago. In 1874 he established the Alexander Burke Brick Manufacturing Company, which sold out three years ago to the Illinois Brick Company. Mr. Burke took great pride in his family. He was father of eleven children, all of whom survive him.

The market place of the building material industry. Employment department, machinery wanted and for sale, etc. If your wants are not answered in this page, write a letter to this office.

THE FRANCIS PUBLISHING CO.
537 S. Dearborn Street Chicago, Illinois

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Advertisements will be inserted in this section at the following rates:

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Heading counts as two lines.
No display except the headings can be admitted.

Remittances should accompany the order. No extra charges for copy of paper containing the advertisement.

EMPLOYEES WANTED

WANTED—Young man who is willing to hustle and make good, for the position of foreman at lime plant. Common sense, judgment and energy will count for more than long experience. Address
Lock Box 164, Fond du Lac, Wis.

EMPLOYMENT WANTED

YOUNG man (28), married, excellent education, with about five years' experience as superintendent and foreman with contractors on heavy construction work, seeks permanent position with sand and gravel, quarry or stone crushing concern. Address
Box 977, care ROCK PRODUCTS.

WANTED—POSITION
as superintendent or foreman of gypsum or lime plant; experienced; good reference. Address
X. Y. Z., care ROCK PRODUCTS.

WANTED—Position as superintendent or manager of crushed stone or lime plant; thoroughly practical and experienced and can give best of references. Use modern and efficient methods, and would be willing to work on a salary and bonus.
Address "BOX 967, care ROCK PRODUCTS.

WANTED—Position as manager or superintendent of cement or lime plant. Have had fifteen years' experience and am thoroughly conversant with modern methods of production. Address Box 972, care ROCK PRODUCTS.

WANTED—Position as manager of sand and gravel plant, or information regarding location for establishing a business of this kind; south or southwest preferred.
Address Box 975, care ROCK PRODUCTS.

STONE quarry expert wants position as superintendent or foreman—go anywhere. Also will operate quarry or crusher plant by contract, furnishing experienced quarry gang, saving 8 to 10% on the operating cost.
Address Box 976, care ROCK PRODUCTS.

WANTED POSITION—As superintendent of rock crushing plant. Experienced; best of references.
Address Box 979, care ROCK PRODUCTS.

BUSINESS OPPORTUNITIES

FOR SALE—A newly discovered isolated limestone hill covering seventy-five acres, east of Blue Ridge mountains and 100 miles east of regular limestone region, in Piedmont section of eastern middle south. Quarry opened, 88% carbonate lime, no magnesia. Experimental lime plant erected. Address Box 971, care ROCK PRODUCTS.

PARTY desiring to enter sand and gravel, or crushed stone business, would buy moderate sized plant, either developed or undeveloped. Address
Box 978, care ROCK PRODUCTS.

SAND.
The largest, purest silica sand deposit in the world; coarse, sharp, white; analyzing 99.90% silica, balance moisture; on railroad, near water transportation. If interested in buying same, write R. L. MARTIN, Ocala, Fla.

N. H. PATNOE, BUFFALO, IOWA, makes a specialty of erecting modern stone crushing plants and developing quarries. Thirty years' experience in this line; open for engagement February 1st. References.

WANTED.
Acres for stone quarry on Chicago, Indiana & Southern, or other adjacent railroad. Address
Box 980, care ROCK PRODUCTS.

FOR SALE—Thirty acres of limestone with fully equipped modern lime kiln. Fine opportunity for a large stone crushing business. Will bear investigation. Will sell outright or retain a working interest.
R. S. HANDFORD, Batesville, Ark.

MELICENITE SANITARY FLOORING
With my formulas and instructions you can mix and lay sanitary, dustless, jointless, fire-proof and waterproof floors in residences and public buildings. Large profits and no competition. Write today for free circular. A. B. HOUGHTON, 382 Frederick Ave., Detroit, Michigan.

CLAYWORKERS CASTINGS GREY IRON.
Foundry Castings—Prompt delivery. WM. E. DEE CO., Foundries & Machine Shops, Chicago and Harvey, Ill. All kinds of clay-workers castings, dies, dryer cars, grate bars, etc. Main office, 30 N. LaSalle St., Chicago, Ill.

BLACK MARBLE QUARRY.
A Good Business Opening.
The owner of an extensive Virginia deposit of black and gray marble would like to sell a half interest to an experienced man.
The marbles are adapted to high grade monument, column, interior finish and other work. Several carloads have already been sold and purchasers have given duplicate orders.
The quarry is on the Southern Railway and has good shipping facilities.
If interested refer to file No. 46,543 and write
M. V. RICHARDS, Land and Industrial Agent,
Room 371, Southern Railway, Washington, D. C.

CAPITAL WANTED TO EXTEND BUSINESS.
Limestone quarry, equipped with crusher and located favorably for the delivery of road material and concrete aggregate to an exceptionally wide market, seeks to interest additional capital for the purpose of developing the property further so as to branch out into the lime business and increase the present volume of operations. Rock is extremely pure lime carbonate and quarry opening of such extent as to fully exhibit its immense value for development. The market and freight rates are favorable for an immense extension of the business. Only those with the cash for a prompt business transaction wanted to open negotiations.
Address Box 973, care ROCK PRODUCTS.

CARS & LOCOMOTIVES FOR SALE

CARS.
156—5 yard 36-inch gauge all steel Peteler 2-way dump cars, built 1910 and '11. Thoroughly overhauled. Practically good as new. The best dump cars we have ever seen. We are putting these cars on the market at bargain prices. Write us for further information.
Eight 36-inch gauge double-truck flat cars.

LOCOMOTIVES.
Eleven—12x16 Porter four-wheel saddle-tank 36-inch gauge locomotives, built 1910 and '11, and used until the end of the season 1911; practically new.
One—11x16 Pittsburg four-wheel saddle tank, 36-inch gauge.
Thirty-five 9x14 Porter four-wheel saddle tanks, 36-inch gauge. Most of these have steel cabs and were built since 1902.

STEAM SHOVELS.
Three—Marion Model 60 steam shovels, in excellent condition; ready for immediate shipment.
One—Bucyrus Model 65, with Model 70 front and applied. Thoroughly overhauled.
Two—Marion Model G shovels, in first-class condition.
Also big lot steam shovel repair parts, and other contractors' equipment.
MINNESOTA EQUIPMENT CO., Hibbing, Minn.

PLANTS FOR SALE

FOR SALE—Complete stone crushing plant on Southern railroad. Entire output sold months ahead. No incumbrances. For particulars address
Box 958, care ROCK PRODUCTS.

FOR SALE—Limestone quarry located in northern Ohio, with shipping facilities on four main lines. Equipment; steam shovel; locomotives and large crushers. Established with plenty of orders on books. This is a money maker and is offered at a bargain with the best of reasons for selling. Address
"Crushed Stone," 12960 Euclid Av., Cleveland, Ohio.

FOR SALE: OR LEASE:
Limestone property, in Birmingham district. Entirely suitable for manufacture of crushed stone and burnt lime products. Two kilns on property. Located directly on railroad. Complete report by well-known geologist. Will bear investigation. Address
"Birmingham Limestone," care ROCK PRODUCTS.

FOR SALE.
Granite quarry and plant equipped for crushed granite, block or monumental work. Brown chocolate color and located in Wisconsin granite district.
DOLESE & SHEPARD CO., Chicago, Ill.

Limestone Plant For Sale
Will sell our newly erected limestone plant at a decided sacrifice. About 7 acres of land go with the plant, which is located just east of Wheeling on main line of the B. & O. R. R. Double tracks under bins. Rock crushing and pulverizing. Capacity about 400 tons daily.
Rockpoint Limestone Co., Wheeling, W. Va.

35,000 capacity sand-lime brick plant complete with engine, boilers, mixers, dryers and all equipment in good condition—plant operated only three years. Must be sold at once. Inquire JAMES T. DROUGHT, Railway Exchange Bldg., Milwaukee, Wis.

FOR SALE—Fully equipped high calcium limestone property. Three patent kilns, new crusher, electrical equipment, eastern Pennsylvania, good Market, chemical and fluxing trade. Good opportunity for the right man.
Address Box 968, care ROCK PRODUCTS.

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FOR SALE! A BARGAIN.
1—75 K. W. 250 volt Compound Belted Generator, direct current.
1—50 H. P. and 1—20 H. P. 230 volt Motors complete.
1—Marble Switch Board, also 000 Triple Braid Weatherproof wire.
Above machines manufactured by the Northern Electrical Mfg. Co., and run only seven months. Also, some Sand Lime Brick Machinery.
For further information and prices address
KING'S CROWN PLASTER CO., Cedar Rapids, Iowa.

FOR RENT OR SALE.
One No. 0 Thew Shovel, a Belt Driven Hoisting Drum, four Double Cylinder Hoisting Engines, a lot of Air Pipe, three Air Compressors, and Rails. Address
MERTES MACHINERY CO., Milwaukee, Wis.

FOR SALE—An American Hammer Mill, second-hand, in good condition, at a bargain. Address Box 981 c/o ROCK PRODUCTS.

A FEW OF OUR BARGAINS
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POWER, QUARRY AND MINING MACHINERY

Before you buy a piece of machinery write and see if we have it second hand. The **saving** is from **35** to **65**%.

LOCOMOTIVE CRANE, McMyler, 10 ton, 35' boom with clam shell bucket. New less than a year ago. Practically new now.
THEW SHOVEL, No. O, ⅝ yd. full circle, on traction wheels.
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48"x20' **GATES IRON FRAME REVOLVING SCREEN.**
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5 **1 yd. CLAM SHELL BUCKETS,** different makes.
Pumps, Air Compressors, Drills, Etc.
Write us if you intend to buy equipment.

WILLIS SHAW MCHY. CO.
New York Life Bldg. CHICAGO, ILL.

ROCK PRODUCTS

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American Locomotive Co.
Contractors Mach. & Sup. Co.
Marion-Osgood Co., The.
Owen Bucket Co.
Thew Automatic Shovel Co.
Willis Shaw Mchy. Co.

SINK AND FLOAT TESTERS.
Pennsylvania Crusher Co.

STEAM SHOVEL TEETH.
Edgar Allen Am. Manganese Steel Co.
Taylor-Wharton Iron & Steel Co.

STUCCO RETARDER.
National Retarder Co.

TIRES—RUBBER.
B. F. Goodrich Co.

TUBE MILLS.
Allis-Chalmers Manufacturing Co.
Smidth & Co., F. L.

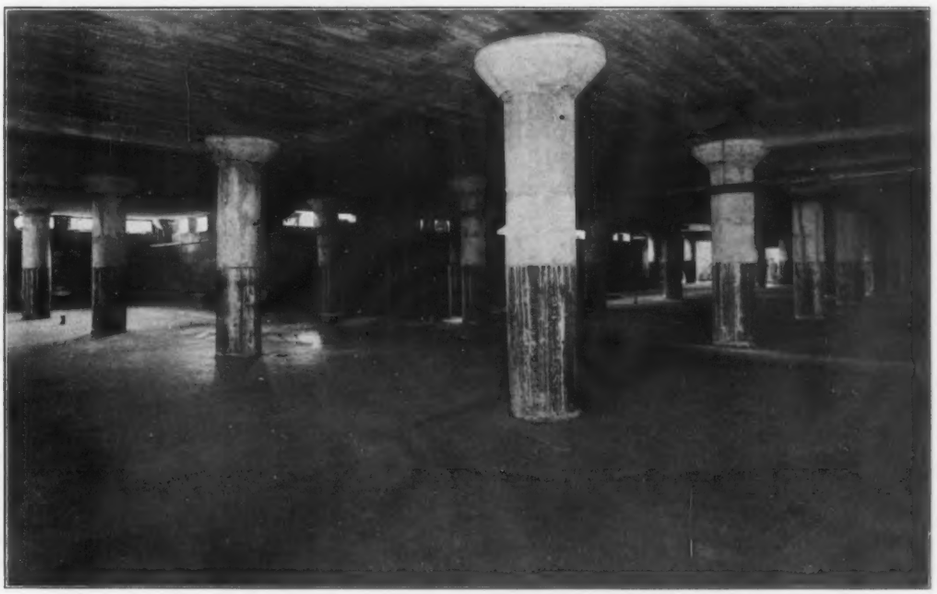
WAGONS.
Troy Wagon Wks. Co., The

WATERPROOFING.
Cabot, Samuel, Inc.
Carolina Portland Cement Co.
Ceresit Waterproofing Co.
Maumee Chemical Co.
Sandusky Portland Cement Co.
Wadsworth, Howland & Co., Inc.

WEIGHING MACHINES.
Automatic Weighing Machine Co.
Sturtevant Mill Co.

WOOD PULP.
Niagara Gypsum Co.
Plymouth Gypsum Co.

Are You THE Dealer In Your City?



The man that furnished the material to harden these cement floors, does 75% of the floor work in his city—HE WOULD BE **SOME** CUSTOMER, WOULDN'T HE? If **YOU** had been our dealer in his city, handling **CARBO-LUNDUM CEMENT HARDENER** you would have sold him **THE HARDENER** and 9 times out of 10 the cement and sand too.

Carbo-Lundum Cement Hardener

"The Cement Hardener with the Carborundum Backbone"

Produces wearproof, waterproof, dustless concrete floors. We have the most efficient and economical line of cement hardening materials, composition floor aggregates, aggregates for anti-slip floors under one roof in the United States to-day.

OUR CEMENT HARDENER HAS HAD PHENOMENAL SUCCESS IN THE BIG BUILDINGS

Now we want the smaller cities to get a chance and we know there is **ONE** dealer in each town wide awake enough to take this chance and it maybe the last because requests are coming in by the hundred for agencies. **ARE YOU THE MAN?**

Carbo-Lundum THE Cement Hardener

Will Bring the Contractors to YOU—YOU Have the Key to Wearproof Floors

How Will It Increase Your Profits?

1. It is the purest and hardest cement hardening material known today and results will prove it.
2. It is sold to you so you can realize from **75 to 100% profits** and allow the contractor to **get** the job.
3. No city is too small to use cement and no cement floor will last like a Carbo-Lundumized one.
4. Any dealer handling this material need not fear competition—our price to you is ROCK BOTTOM.

The Carbo-Lundum Hardener Co.

1200 Karpen Building **CHICAGO, ILLINOIS**

WRITE NOW FOR A DEALERS PROPOSITION

I Am THE Dealer—Send Me Prices

Name .....

Address .....

THIS WILL NOT OBLIGATE ME !

BOOKS FOR THE BUILDING TRADE

Contractors, Cement Users, Building Material Dealers, Estimators, Manufacturers, Engineers

ESTIMATING AND CONTRACTING

A mistake in estimating means the difference between a profit or a loss on a contract. In these days of modern construction it is not safe to guess or go by "rule of thumb." Even experienced contractors who rely upon eyesight or rough calculations make costly errors.

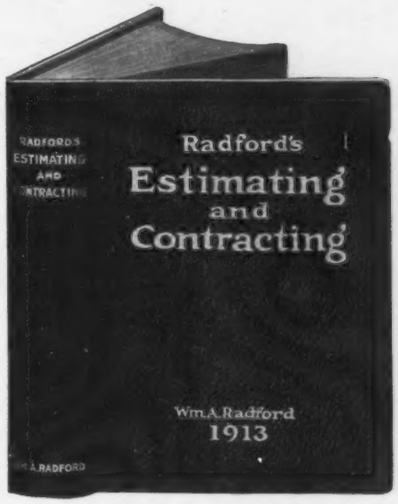
Easy to Overlook Details

It is mighty easy to overlook some important detail if it is not down in black and white. Jobs are lost because of too high prices. Profits are lost because prices are too low. Be on safe ground; have a reliable accurate guide to help you in your figuring.

Radford's Estimating and Contracting is a safe and sure guide for any contractor. Its 900 pages are filled with up-to-date methods for rapid, systematic and accurate calculation of costs of all types and details of building construction and all related work of contractors.

Helps to Easy Figuring

It gives quotations and other data indicating the cost of materials and labor, standard schedules and forms used for measurements and estimates, labor-saving tables and all other points a contractor, builder or carpenter should know.



NEW 900 PAGE BOOK

Condensed Summary of Contents

ESTIMATING AS A SCIENCE

General Principles of Estimating; Estimating Essential to all Successful Business Operations; Requirements of the Good Estimator; Accuracy Versus Guesswork; What to Avoid in Estimating; Remedies for Inaccuracies.

ESSENTIAL BASIS OF ALL ESTIMATING

Analysis of Proposed Operations; Cost Finding and Cost Distribution.

CONDITIONS AFFECTING COST

Local Market Conditions; Freight and Haulage; Rates of Wages Paid in Various Trades.

METHODS OF ESTIMATING

Comparative and Analytic Methods; Approximate Detailed Estimates from Carefully Figured Data; Estimating by Cubical Contents of Similar Structures; Estimating by the Square of 100 Sq. Ft.; Estimating by Quantities; Unit-Cost for Materials.

COST FACTORS CLASSIFIED

Factors Common to Construction in General; Factors Involved in Special Types of Construction; Factors Incidental or Accessory to Various Constructions.

COSTS COMMON TO CONSTRUCTION IN GENERAL

Leveling and Preparing Site; Employer's Liability Insurance; Water Supply During Construction; Number of Men and Teams Required; Rates of Wages; Cost of Superintendence; Earth and Rock Excavation; Foundations and Footings; Back Filling.

COSTS INVOLVED IN SPECIAL CONSTRUCTION: CARPENTRY WORK

Measurements; Timber and Lumber (Grades and Sizes),

MILL WORK

Doors and Door-Frames; Sash and Window Frames; Blinds; Transoms; Mouldings; Columns and Capitals; Cupboard Doors; Store Fronts; Threshholds; Stairs and Handrails; Newels and Balusters; Grills and Spindles; Mantels and Consols; Chair and Plate Rails; Wainscoting; Screens; Weather Strips; Clothes Line Posts

CONCRETE CONSTRUCTION

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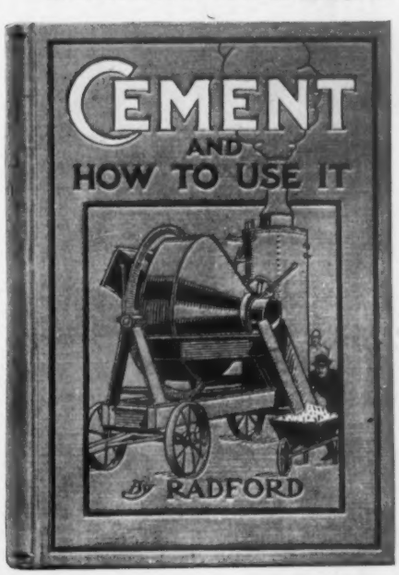
Price Postpaid $2.00

Cement and How to Use It



"Cement and How to Use It" is illustrated with over 350 drawings, diagrams, details, etc., including many pages of full-page plates reproducing architects' original drawings and details of construction.

"Cement and How to Use It" is divided into many parts, making it especially valuable for the reason that each particular use in which cement can be applied is given separate and distinct treatment, and anyone in search of needed information can find it instantly.

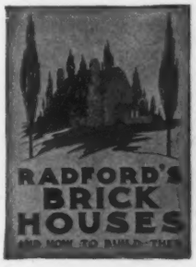
"Cement and How to Use It" is the largest book of its kind ever published. It consists of 370 pages, size, 6x9 inches, and is printed from large clear type on a high grade book paper, especially made for it.

"Cement and How to Use It" is written so that any reader can understand any page, every term used, and every detail shown. It is entirely free from technicalities, and yet its pages are filled with practical information for all classes of cement users.

Two thousand topics relating to cement are discussed in this great, new book. No book attempting to treat this important subject has ever before so successfully covered the ground.

Every phase, part and use of this wonderful twentieth century building and paving material is treated fully and exhaustively with complete details showing each successive step to be taken..

Price Postpaid $1.00



Brick Houses

And How to Build Them

Containing 219 (8x11 inch) pages illustrated by over 300 designs and details of brick house construction, beside perspective views and floor plans of 82 brick houses with estimates of cost construction and miscellaneous data about the use of brick from its manufacture to its placing in the building, including ornamental brick and tile work, sewer construction, fireplaces, brick veneer construction, arches, cements and mortars, how to estimate the cost of brick construction, etc., etc. A valuable book for the home builder as well as to the builder and bricklayer.

The houses shown are all of artistic design, drawn by leading architects and show what can be accomplished by the use of brick as a building material. The floor plans have received very careful attention so as to have a convenient and economical arrangement of rooms, with ample closet room and all modern conveniences provided for....

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Cement Houses

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This large book of 176 (8x11 inch) pages contains illustrated details of cement construction—standard specifications for cement—concrete blocks—general information concerning waterproofing, coloring, aggregates, mixtures, paving, reinforcing, foundations, walls, steps, chimneys, floors, etc., together with perspective views and floor plans of 87 stucco and concrete block houses.

The illustrations show the houses exactly as they will look when built and give a very clear idea of their appearance. All the floor plans are shown, giving the location and dimensions of all rooms, closets, porches, etc., with detailed information as to both interior and exterior.

The houses illustrated range from the small to the medium large in size, such as will appeal to the average man or woman who intend to build a home.....

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ROCK PRODUCTS, 537 South Dearborn Street, CHICAGO

An Important Letter!

MR. BLAST HOLE DRILLER:
DEAR SIR:

We want this letter to prove of interest. We want you to give it unusual attention.

What matters it to you **Mr. Quarryman,** or **Mr. Contractor,** if an expert, **paid a big bonus to make a record,** succeeds in drilling 70, 80 or 100 feet per day of 10 hours, in soft rock, for thirty or fifty days in succession!

Why should you be particularly interested in our statement that our "CLIPPER" Machine drilled an average of **104 feet per day of ten hours** for six days in succession! Or, that it drilled **9.62 feet per hour for 300 hours** in the contest at the quarry of the United States Crushed Stone Co., near Chicago, when its nearest competitor drilled but 8.36 feet per hour in the same time!

Outside of showing the possibilities when a machine is handled by a driller of exceptional ability, who **is paid for making an abnormal record,** these things mean little to you! In fact, they **are not worth your serious consideration!**

But the points that should interest you most are as follows:

1. With what machine can **my own men** drill the greatest number of feet per month or per year in **my own quarry?**
2. What machine will cost me the **least for repairs each year?**
3. For what machine can I procure needed tools or repairs **with least delay?**
4. What machine will **serve me longest?**

These are **the only vital questions** for you to decide.

From the light of past experience in Blast Hole Drilling there can be but one honest, business answer to these questions and that is, **"THE CLIPPER"!** It is the machine that has **stood the test of time** and it more nearly fills all the requirements of such work than any other machine used for the purpose, and this is the opinion of **ninety-nine per cent** of those who use it for Blast Hole Drilling.

The following list shows but **a very few** of the many users of "CLIPPER" Machines who first investigated carefully and then **wisely bought.**

The France Stone Co., Toledo, Ohio,	11 Machines	United States Crushed Stone Co., Chicago, Illinois,	4 Machines
Brownell Improvement Co., Chicago, Ill.,	8 "	Universal Crushed Stone Co., Chicago, Ill.,	2 "
Casparis Stone Co., Columbus, Ohio,	9 "	Illinois Stone Co., Chicago, Ill.,	2 "
Toledo Stone & Glass Sand Co., Toledo, Ohio,	4 "	Illinois State Penitentiary, Joliet, Ill.,	2 "
Toledo-Owens Glass Sand Co., Toledo, Ohio,	2 "	Artesian Stone & Limeworks Co., Chicago, Ill.,	2 "
Wagner Quarries Co., Sandusky, Ohio,	5 "	Alpha Portland Cement Co., Easton, Pa.,	5 "
Kelley Island Lime & Transport Co., Cleveland, O.,	3 "	Lehigh Portland Cement Co., Allentown, Pa.,	6 "
Solvay Process Co., Syracuse, N.Y. & Sibley, Mich.,	9 "	Atlas Portland Cement Co., Northampton, Pa.,	2 "
Michigan Alkali Co., Alpena & Huron, Michigan,	6 "	Coplay Cement Mfg. Co., Coplay, Pa.,	2 "
Michigan Limestone & Chemical Co., Rogers, Mich.,	11 "	Tomkins Cove Stone Co., Tomkins Cove, N. Y.,	3 "
Martin International Trap Rock Co., Sault Ste. Marie, Mich., & Bruce Mines, Ont., Canada,	3 "	Standard Limestone Co., Baltimore, Md.,	2 "
		Canada Cement Co., Montreal, Canada,	3 "
Rogers & Quirk, Montreal, Canada			

Besides these there are innumerable quarries throughout the country where "CLIPPER" Machines are used exclusively.

Many prominent contractors are also using "CLIPPER" Machines with most satisfactory results, among them the following:

The Hardaway Contracting Co.
Builders of the Government dam across the Great Warrior River in Alabama and of the dam across the Yadkin River in North Carolina

The Cook Construction Co.
On canal work at Montreal

Holbrook, Cabot & Rollins Corporation

The Hydraulic Engineering Co., of Maine
Builders of the great dam across the Mississippi River at Keokuk

Lathrop & Shea Co.

O'Brien Construction Co.

Brocklehurst & Potter Co.

Read Construction Co.

Great Lakes Dredge and Dock Co.

With more than thirty years experience in this business, we are at your service.

Yours truly,

THE LOOMIS MACHINE CO., TIFFIN, OHIO

P. S. It is a remarkable fact that **ninety per cent** of the Stone Producers who attended the large meeting at Columbus, Ohio, in January 1914, use **"CLIPPER" Machines exclusively,** and the others, with the possible exception of one man, also use a majority of "CLIPPER" Machines and prefer them to any other. Nothing can show more plainly than this the direction in which the wind is blowing.